FEDERAL REGISTER

Vol. 79 Thursday,
No. 6 January 9, 2014

Part II

Environmental Protection Agency

40 CFR Part 63
National Emission Standards for Hazardous Air Pollutants: Generic Maximum Achievable Control Technology Standards; and Manufacture of Amino/Phenolic Resins; Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA–HQ–OAR–2012–0133; FRL–9903–68–OAR]

RIN 2060–AR49

National Emission Standards for Hazardous Air Pollutants: Generic Maximum Achievable Control Technology Standards; and Manufacture of Amino/Phenolic Resins

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The EPA is proposing amendments, with regard to regulations applicable to three industrial source categories, to two national emission standards for hazardous air pollutants (NESHAP): NESHAP for Source Categories: Generic Maximum Achievable Control Technology Standards; and NESHAP: Manufacture of Amino/Phenolic Resins. The three source categories addressed in this action are Acrylic and Modacrylic Fibers Production, Polycarbonate Production and Amino/Phenolic Resins Production. For all three of these source categories, the EPA is proposing decisions concerning the residual risk and technology reviews. The EPA is also proposing amendments to correct and clarify regulatory provisions related to emissions during periods of startup, shutdown and malfunction; add provisions for affirmative defense; add requirements for electronic reporting of performance test results; clarify provisions pertaining to open-ended valves and lines; add monitoring requirements for pressure relief devices; and add standards for previously unregulated hazardous air pollutant (HAP) emissions sources for certain emission points. We estimate that these proposed amendments will reduce HAP emissions from these three source categories by a combined 22 tons per year.

DATES: *Comments.* Comments must be received on or before March 10, 2014. A copy of comments on the information collection provisions should be submitted to the Office of Management and Budget (OMB) on or before February 10, 2014.

Public Hearing. If anyone contacts the EPA requesting a public hearing by January 24, 2014, we will hold a public hearing on February 10, 2014. If a hearing is requested, the last day to pre-register in advance to speak at the hearing will be February 3, 2014. Additionally, requests to speak will be taken the day of the hearing at the hearing registration desk, although preferences on speaking times may not be able to be fulfilled. If you require the service of a translator or special accommodations such as audio description, please let us know at the time of registration. If no one contacts the EPA requesting a public hearing to be held concerning this proposed rule by January 24, 2014, a public hearing will not take place. For further information on the hearing, see section I.E of this preamble.

ADDRESSES: *Comments.* Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2012–0133, by one of the following methods:

- *http://www.regulations.gov:* Follow the online instructions for submitting comments.
- *Email: a-and-r-docket@epa.gov,* Attention Docket ID No. EPA–HQ–OAR–2012–0133.
- *Fax:* (202) 566–9744, Attention Docket ID No. EPA–HQ–OAR–2012–0133.
- *Mail:* U.S. Postal Service, send comments to: EPA Docket Center, EPA West (Air Docket), Attention Docket ID No. EPA–HQ–OAR–2012–0133, U.S. Environmental Protection Agency, Mailcode: 2822T, 1200 Pennsylvania Ave. NW., Washington, DC 20460. Please include a total of two copies. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attn: Desk Officer for EPA, 725 17th Street NW., Washington, DC 20503.
- *Hand Delivery:* U.S. Environmental Protection Agency, EPA West (Air Docket), Room 3334, 1301 Constitution Ave. NW., Washington, DC 20004, Attention Docket ID No. EPA–HQ–OAR–2012–0133. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions. Direct your comments to Docket ID No. EPA–HQ–OAR–2012–0133. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.regulations.gov,* including any personal information provided, unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *http://www.regulations.gov* or email. The *http://www.regulations.gov* Web site is an ''anonymous access'' system, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through *http://www.regulations.gov,* your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should avoid the use of special characters or any form of encryption and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at: *http://www.epa.gov/dockets.*

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA–HQ–OAR–2012–0133. All documents in the docket are listed in the *regulations.gov* index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically in regulations.gov or in hard copy at the EPA Docket Center, EPA West, Room 3334, 1301 Constitution Ave. NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the EPA Docket Center is (202) 566–1742.

Public Hearing. If a public hearing is requested by January 24, 2014, it will be held on February 10, 2014, at the EPA's Research Triangle Park Campus, 109 T.W. Alexander Drive, Research Triangle Park, North Carolina 27711. The hearing will convene at 10:00 a.m. (Eastern Standard Time) and end at 5:00 p.m. (Eastern Standard Time). A lunch break will be held from 12:00 p.m. (Eastern Standard Time) until 1:00 p.m. (Eastern Standard Time). Please contact Ms. Virginia Hunt at (919) 541–0832 or at *hunt.virginia@epa.gov* to request a

hearing, to determine if a hearing will be held and to register to speak at the hearing, if one is held.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Mr. Nick Parsons, Sector Policies and Programs Division (E143–01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–5372; fax number: (919) 541–0246; and email address: *parsons.nick@epa.gov.* For specific information regarding the risk modeling methodology, contact Mr. Mark Morris, Health and Environmental Impacts Division (C539–02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–5416; fax number: (919) 541–0840; email address: *morris.mark@epa.gov.* For information about the applicability of these three NESHAP to a particular entity, contact Ms. Tavara Culpepper, Office of Enforcement and Compliance Assurance (OECA), telephone number: (202) 564–0902; email address: *culpepper.tavara@epa.gov.*

SUPPLEMENTARY INFORMATION: *Preamble Acronyms and Abbreviations.* We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

ACGIH American Conference of Governmental Industrial Hygienists
ADAF age-dependent adjustment factors
AEGL acute exposure guideline levels
AERMOD air dispersion model used by the HEM-3 model
AMF Acrylic and Modacrylic Fibers
APR Amino/Phenolic Resins
BACT best available control technology
CAA Clean Air Act
CalEPA California EPA
CBI Confidential Business Information
CDX Central Data Exchange
CEDRI Compliance and Emissions Data Reporting Interface
CFR Code of Federal Regulations
EJ environmental justice
EPA Environmental Protection Agency
ERPG Emergency Response Planning Guidelines
ERT Electronic Reporting Tool
FR **Federal Register**
GACT generally achievable control technology
HAP hazardous air pollutants
HCl hydrochloric acid
HEM-3 Human Exposure Model, Version 1.1.0
HI hazard index
HON National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry
HQ hazard quotient
ICR Information Collection Request
IRIS Integrated Risk Information System
km kilometer
LAER lowest achievable emission rate
LDAR leak detection and repair
MACT maximum achievable control technology
MACT Code Code within the NEI used to identify processes included in a source category
mg/m^3 milligrams per cubic meter
MIR maximum individual risk
NAAQS National Ambient Air Quality Standards
NAICS North American Industry Classification System
NAS National Academy of Sciences
NATA National Air Toxics Assessment
NEI National Emissions Inventory
NESHAP National Emissions Standards for Hazardous Air Pollutants
NIOSH National Institutes for Occupational Safety and Health
NRC National Research Council
NTTAA National Technology Transfer and Advancement Act
OAQPS Office of Air Quality Planning and Standards
OECA Office of Enforcement and Compliance Assurance
OMB Office of Management and Budget
PAH polycyclic aromatic hydrocarbons
PB–HAP hazardous air pollutants known to be persistent and bio-accumulative in the environment
PC Polycarbonate
POM polycyclic organic matter
ppm parts per million
PRD pressure relief device
RACT reasonably available control technology
RBLC RACT/BACT/LAER Clearinghouse
REL reference exposure level
RFA Regulatory Flexibility Act
RfC reference concentration
RfD reference dose
RTO regenerative thermal oxidizer
RTR residual risk and technology review
SAB Science Advisory Board
SBA Small Business Administration
SOCMI Synthetic Organic Chemical Manufacturing Industry
SOP standard operating procedures
SSM startup, shutdown and malfunction
TEQ toxic equivalency quotient
TLV threshold limit value
TOSHI target organ-specific hazard index
tpy tons per year
TRIM.FaTE Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure model
TTN Technology Transfer Network
UF uncertainty factor
μg/m^3 microgram per cubic meter
UMRA Unfunded Mandates Reform Act
URE unit risk estimate
VCS voluntary consensus standards
VOC volatile organic compounds

Organization of this Document. The information in this preamble is organized as follows:

I. General Information

A. Executive Summary

1. Purpose of the Regulatory Action

Section 112(d)(1) of the CAA requires the EPA to establish NESHAP for source categories and subcategories of both major sources and area sources of HAP that are listed for regulation under CAA section 112(c). For major sources of HAP, under CAA sections 112(d)(2) and (3), the EPA is required to set standards that reflect the emissions performance achieved by the maximum achievable control technology (MACT) and by other measures used at sources in the subject source category. For area sources, under CAA section 112(d)(5) the EPA is allowed to instead adopt standards reflecting generally achievable control technology (GACT). Section 112(d)(6) of the CAA requires the EPA to review these NESHAP regulations for each covered source category and to revise them as necessary (taking into account developments in practices, processes and control technologies) no less frequently than every 8 years. Section 112(f)(2) of the CAA requires the EPA to assess, within 8 years of promulgation of the original NESHAP for major sources and area sources subject to MACT, the remaining risks due to emissions of HAP from these source categories and determine whether the emissions standards provide an ample margin of safety to protect public health. Section 112(f)(5) provides that the EPA is not required to conduct this latter review for area sources subject to GACT. We refer to these reviews collectively as residual risk and technology reviews (RTRs).

This action presents the results of, and proposed decisions based on, the EPA's reviews of the following three source categories: Acrylic and Modacrylic Fibers Production (AMF), Amino/Phenolic Resins Production (APR) and Polycarbonate Production (PC). As detailed below, the EPA is proposing amendments, based on the relevant RTR, to regulations applicable to each of these three source categories. In addition, we are also proposing amendments to the relevant regulations to address the following: Emissions during periods of startup, shutdown and malfunction; standards for previously unregulated HAP emissions sources; revisions to require monitoring of pressure relief devices in organic HAP service that release to the atmosphere; clarification of provisions pertaining to open-ended valves and lines; and revisions to require electronic reporting of performance test results.

2. Summary of the Major Provisions of the Regulatory Action in Question

With regard to the AMF source category, the EPA has determined that no amendments are needed for this source category based on the risk review under CAA section 112(f). However, based on the technology review under CAA section 112(d)(6), the EPA is proposing to eliminate the less stringent of two currently available options for complying with leak detection and repair program requirements—while retaining the more stringent compliance requirement. In addition, under CAA sections 112(d)(2) and (3), the EPA is proposing requirements to address certain emission points that were not previously regulated.

With regard to the APR source category, the EPA has determined that no amendments are needed for this source category based on the risk and technology reviews under CAA sections 112(d)(6) and 112(f). However, under CAA sections 112(d)(2) and (3), the EPA is proposing requirements to address certain emission points that were not previously regulated.

With regard to the PC source category, the EPA has determined that no amendments are needed for this source category based on the risk review under CAA section 112(f). However, based on the technology review under CAA section 112(d)(6), the EPA is proposing to eliminate the less stringent of two currently available options for complying with leak detection and repair program requirements—while retaining the more stringent compliance requirement.

The EPA is also proposing revisions to all three source categories in four areas. First, the EPA is proposing to revise the standards so that they apply at all times, including during periods of startup, shutdown and malfunction (SSM). Second, the EPA is proposing to require electronic reporting of performance test results. Third, the EPA is clarifying the provisions regarding open-ended lines by adding a definition for what constitutes a ''sealed'' open-ended line. Finally, the EPA is proposing to require monitoring of pressure relief devices (PRDs) in organic HAP service that release to the atmosphere, and that a pressure release from such a PRD is a violation.

3. Costs and Emissions Reductions

Table 1 below summarizes the estimated costs and potential emissions reductions for this action. See section IX of this preamble for further discussion of the costs and impacts.

TABLE 1—SUMMARY OF THE COSTS AND EMISSIONS REDUCTIONS FOR THE PROPOSED ACRYLIC AND MODACRYLIC FIBERS PRODUCTION, AMINO/PHENOLIC RESINS PRODUCTION AND POLYCARBONATE PRODUCTION NESHAP AMENDMENTS

Source category	Number affected plants	Capital costs ($)	Annualized costs ($/yr)	Emissions reductions (tpy)
Acrylic and Modacrylic Fibers Production	1	$38,000	$6,000	0.2
Amino/Phenolic Resins Production	18	1,500,000	400,000	20.1
Polycarbonate Production	4	67,000	9,400	2.1

B. Does this action apply to me?

Table 2 of this preamble lists the NESHAP and associated regulated industrial source categories that are the subject of this proposal. Table 2 is not intended to be exhaustive, but rather to provide a guide for readers regarding entities that this proposed action is likely to affect. The proposed standards, once finalized, will be directly applicable to the affected sources. Federal, state, local and tribal government entities would not be affected by this proposed action. As defined in the ''Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990'' (see 57 FR 31576, July 16, 1992), the ''Acrylic and Modacrylic Fibers Production'' source category includes any facility engaged in manufacturing fibers in which the fiber-forming substance is any long-chain, synthetic polymer composed of at least 85 percent, by weight, acrylonitrile units. As defined in the ''Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990'' (see 57 FR 31576, July 16, 1992) and subsequently amended (see 65 FR 3276, January 20, 2000), the ''Amino/Phenolic Resins Production'' source category includes any facility engaged in manufacturing amino resins or phenolic resins. As defined in the ''Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990'' (see 57 FR 31576, July 16, 1992), the ''Polycarbonate Production'' source category includes any facility which manufactures a special class of polyester formed from the dihydroxy compound and any carbonate diester or by ester interchange.

TABLE 2—NESHAP AND INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS PROPOSED ACTION

NESHAP and source category		NAICS Code [a]
Generic Maximum Achievable Control Technology Standards ..	Acrylic and Modacrylic Fibers Production	325220 (325222)
	Polycarbonate Production	325211 (325211)
Amino/Phenolic Resins Production		325211 (325211)

[a] North American Industry Classification System 2012 (2007 in parenthesis).

C. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this proposal is available on the Internet through the EPA's Technology Transfer Network (TTN) Web site, a forum for information and technology exchange in various areas of air pollution control. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action on the TTN's policy and guidance page for newly proposed or promulgated rules at: *http://www.epa.gov/ttn/oarpg/t3pfpr.html*. The TTN provides information and technology exchange in various areas of air pollution control. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the proposal and key technical documents on the project Web sites: *http://www.epa.gov/ttn/atw/gmact/gmactpg.html* and *http://www.epa.gov/ttn/atw/amino/aminopg.html*. Information on the overall residual risk and technology review program is available at the following Web site: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html*.

D. What should I consider as I prepare my comments for the EPA?

Submitting CBI. Do not submit information containing CBI to the EPA through *http://www.regulations.gov* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on a disk or CD–ROM that you mail to the EPA, mark the outside of the disk or CD–ROM as CBI and then identify electronically within the disk or CD–ROM the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI for inclusion in the public docket. If you submit a CD–ROM or disk that does not contain CBI, mark the outside of the disk or CD–ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: Nick Parsons, c/o OAQPS Document Control Officer (C404–02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attn: Docket ID No. EPA–HQ–OAR–2012–0133.

E. Public Hearing

If a hearing is held, it will provide interested parties the opportunity to present data, views or arguments concerning the proposed action. The EPA will make every effort to accommodate all speakers who arrive and register. Because this hearing, if held, will be at a U.S. governmental facility, individuals planning to attend the hearing should be prepared to show valid picture identification to the security staff in order to gain access to the meeting room. In addition, you will need to obtain a property pass for any personal belongings you bring with you. Upon leaving the building, you will be required to return this property pass to the security desk. No large signs will be allowed in the building, cameras may only be used outside of the building and demonstrations will not be allowed on federal property for security reasons. The EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral comments and supporting information presented at the public hearing. If a hearing is held on February 10, 2014, written comments on the proposed rule must be postmarked by March 10, 2014. Commenters should notify Ms. Virginia Hunt if they will need specific equipment, or if there are other special needs related to providing comments at the hearing. The EPA will provide equipment for commenters to show overhead slides or make computerized slide presentations if we receive special requests in advance. Oral testimony will be limited to 5 minutes for each

commenter. The EPA encourages commenters to provide the EPA with a copy of their oral testimony electronically (via email or CD) or in hard copy form. Verbatim transcripts of the hearings and written statements will be included in the docket for the rulemaking. The EPA will make every effort to follow the schedule as closely as possible on the day of the hearing; however, please plan for the hearing to run either ahead of schedule or behind schedule. Information regarding the hearing (including information as to whether or not one will be held) will be available at: *http://www.epa.gov/ttn/oarpg/t3main.html.* Again, all requests for a public hearing to be held must be received by January 24, 2014.

II. Background

A. What is the statutory authority for this action?

Section 112 of the CAA establishes a two-stage regulatory process to address emissions of HAP from stationary sources. In the first stage, after the EPA has identified categories of sources emitting one or more of the HAP listed in CAA section 112(b), CAA section 112(d) requires us to promulgate technology-based NESHAP for those sources. ''Major sources'' are those that emit or have the potential to emit 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of any combination of HAPs. For major sources, the technology-based NESHAP must reflect the maximum degree of emissions reductions of HAPs achievable (after considering cost, energy requirements and non-air quality health and environmental impacts) and are commonly referred to as MACT standards.

MACT standards must require the maximum degree of emissions reduction achievable through the application of measures, processes, methods, systems or techniques, including, but not limited to, measures that: (1) Reduce the volume of or eliminate pollutants through process changes, substitution of materials or other modifications; (2) enclose systems or processes to eliminate emissions; (3) capture or treat pollutants when released from a process, stack, storage or fugitive emission point; (4) are design, equipment, work practice or operational standards (including requirements for operator training or certification); or (5) are a combination of the above. CAA section 112(d)(2)(A)–(E). The MACT standards may take the form of design, equipment, work practice or operational standards where the EPA first determines that either: (1) a pollutant cannot be emitted through a conveyance designed and constructed to emit or capture the pollutants or that any requirement for, or use of, such a conveyance would be inconsistent with law; or (2) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations. CAA section 112(h)(1)–(2).

The MACT ''floor'' is the minimum control level allowed for MACT standards promulgated under CAA section 112(d)(3) and may not be based on cost considerations. For new sources, the MACT floor cannot be less stringent than the emissions control that is achieved in practice by the best-controlled similar source. The MACT floor for existing sources can be less stringent than floors for new sources but not less stringent than the average emissions limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, the EPA must also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor based on considerations of the cost of achieving the emissions reductions, any non-air quality health and environmental impacts and energy requirements.

The EPA is then required to review these technology-based standards and revise them ''as necessary (taking into account developments in practices, processes, and control technologies)'' no less frequently than every eight years. CAA section 112(d)(6). In conducting this review, the EPA is not required to recalculate the MACT floor. *Natural Resources Defense Council (NRDC)* v. *EPA,* 529 F.3d 1077, 1084 (D.C. Cir. 2008). *Association of Battery Recyclers, Inc.* v. *EPA,* 716 F.3d 667 (D.C. Cir. 2013).

The second stage in standard-setting focuses on reducing any remaining (i.e., ''residual'') risk according to CAA section 112(f). This provision requires, first, that the EPA prepare a Report to Congress discussing (among other things) methods of calculating the risks posed (or potentially posed) by sources after implementation of the MACT standards, the public health significance of those risks and the EPA's recommendations as to legislation regarding such remaining risk. The EPA prepared and submitted the *Residual Risk Report to Congress,* EPA–453/R–99–001 (*Risk Report*) in March 1999. Congress did not act in response, thereby triggering the EPA's obligation under CAA section 112(f)(2) to analyze and address residual risk.

Section 112(f)(2) of the CAA requires the EPA to determine for source categories subject to MACT standards whether the emission standards provide an ample margin of safety to protect public health. Section 112(f)(2)(B) of the CAA expressly preserves the EPA's use of the two-step process for developing standards to address any residual risk and the agency's interpretation of ''ample margin of safety'' developed in the *National Emissions Standards for Hazardous Air Pollutants: Benzene Emissions from Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants* (Benzene NESHAP) (54 FR 38044, September 14, 1989). The EPA notified Congress in the *Risk Report* that the agency intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA–453/R–99–001, p. ES–11). The EPA subsequently adopted this approach in its residual risk determinations and in a challenge to the risk review for the Synthetic Organic Chemical Manufacturing source category, the United States Court of Appeals for the District of Columbia Circuit upheld as reasonable the EPA's interpretation that subsection 112(f)(2) incorporates the approach established in the Benzene NESHAP. *See NRDC* v. *EPA,* 529 F.3d 1077, 1083 (D.C. Cir. 2008)(''[S]ubsection 112(f)(2)(B) expressly incorporates the EPA's interpretation of the Clean Air Act from the Benzene standard, complete with a citation to the **Federal Register**.''); *see also A Legislative History of the Clean Air Act Amendments of 1990,* vol. 1, p. 877 (Senate debate on Conference Report).

The first step in the process of evaluating residual risk is the determination of acceptable risk. If risks are unacceptable, the EPA cannot consider cost in identifying the emissions standards necessary to bring risks to an acceptable level. The second step is the determination of whether standards must be further revised in order to provide an ample margin of safety to protect public health. The ample margin of safety is the level at which the standards must be set, unless an even more stringent standard is necessary to prevent, taking into consideration costs, energy, safety and other relevant factors, an adverse environmental effect.

1. Step 1-Determination of Acceptability

The agency in the Benzene NESHAP concluded that ''the acceptability of risk under section 112 is best judged on the basis of a broad set of health risk measures and information'' and that the ''judgment on acceptability cannot be reduced to any single factor.'' *Id.* at 38046. The determination of what represents an ''acceptable'' risk is based on a judgment of ''what risks are acceptable in the world in which we live'' (*Risk Report* at 178, quoting *NRDC* v. *EPA,* 824 F. 2d 1146, 1165 (DC Cir. 1987) (en banc) (''Vinyl Chloride''), recognizing that our world is not risk-free.

In the Benzene NESHAP, we stated that ''EPA will generally presume that if the risk to [the maximum exposed] individual is no higher than approximately one in 10 thousand, that risk level is considered acceptable.'' 54 FR 38045. We discussed the maximum individual lifetime cancer risk (or maximum individual risk (MIR)) as being ''the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.'' *Id.* We explained that this measure of risk ''is an estimate of the upper bound of risk based on conservative assumptions, such as continuous exposure for 24 hours per day for 70 years.'' *Id.* We acknowledged that maximum individual lifetime cancer risk ''does not necessarily reflect the true risk, but displays a conservative risk level which is an upper-bound that is unlikely to be exceeded.'' *Id.*

Understanding that there are both benefits and limitations to using the MIR as a metric for determining acceptability, we acknowledged in the Benzene NESHAP that ''consideration of maximum individual risk * * * must take into account the strengths and weaknesses of this measure of risk.'' *Id.* Consequently, the presumptive risk level of 100-in-1 million (1-in-10 thousand) provides a benchmark for judging the acceptability of maximum individual lifetime cancer risk, but does not constitute a rigid line for making that determination. Further, in the Benzene NESHAP, we noted that:

> [p]articular attention will also be accorded to the weight of evidence presented in the risk assessment of potential carcinogenicity or other health effects of a pollutant. While the same numerical risk may be estimated for an exposure to a pollutant judged to be a known human carcinogen, and to a pollutant considered a possible human carcinogen based on limited animal test data, the same weight cannot be accorded to both estimates. In considering the potential public health effects of the two pollutants, the Agency's judgment on acceptability, including the MIR, will be influenced by the greater weight of evidence for the known human carcinogen.

Id. at 38046. The agency also explained in the Benzene NESHAP that:

> [i]n establishing a presumption for MIR, rather than a rigid line for acceptability, the Agency intends to weigh it with a series of other health measures and factors. These include the overall incidence of cancer or other serious health effects within the exposed population, the numbers of persons exposed within each individual lifetime risk range and associated incidence within, typically, a 50 km exposure radius around facilities, the science policy assumptions and estimation uncertainties associated with the risk measures, weight of the scientific evidence for human health effects, other quantified or unquantified health effects, effects due to co-location of facilities, and co-emission of pollutants.

Id. at 38045. In some cases, these health measures and factors taken together may provide a more realistic description of the magnitude of risk in the exposed population than that provided by maximum individual lifetime cancer risk alone.

As noted earlier, in *NRDC* v. *EPA,* the court held that section 112(f)(2) ''incorporates the EPA's interpretation of the Clean Air Act from the Benzene Standard.'' The court further held that Congress' incorporation of the Benzene approach applies equally to carcinogens and non-carcinogens. 529 F.3d at 1081–82. Accordingly, we also consider non-cancer risk metrics in our determination of risk acceptability and ample margin of safety.

2. Step 2—Determination of Ample Margin of Safety

CAA section 112(f)(2) requires the EPA to determine, for source categories subject to MACT standards, whether those standards provide an ample margin of safety to protect public health. As explained in the Benzene NESHAP, ''the second step of the inquiry, determining an 'ample margin of safety,' again includes consideration of all of the health factors, and whether to reduce the risks even further . . . . Beyond that information, additional factors relating to the appropriate level of control will also be considered, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors. Considering all of these factors, the agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by section 112.'' 54 FR 38046.

According to CAA section 112(f)(2)(A), if the MACT standards for HAP ''classified as a known, probable, or possible human carcinogen do not reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than one in one million,'' the EPA must promulgate residual risk standards for the source category (or subcategory), as necessary to provide an ample margin of safety to protect public health. In doing so, the EPA may adopt standards equal to existing MACT standards if the EPA determines that the existing standards (i.e. the MACT standards) are sufficiently protective. *NRDC* v. *EPA,* 529 F.3d 1077, 1083 (DC Cir. 2008) (''If EPA determines that the existing technology-based standards provide an 'ample margin of safety,' then the Agency is free to readopt those standards during the residual risk rulemaking.'') The EPA must also adopt more stringent standards, if necessary, to prevent an adverse environmental effect,[1] but must consider cost, energy, safety and other relevant factors in doing so.

The CAA does not specifically define the terms ''individual most exposed,'' ''acceptable level'' and ''ample margin of safety.'' In the Benzene NESHAP, 54 FR 38044–38045, we stated as an overall objective:

> In protecting public health with an ample margin of safety under section 112, EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately 1-in-1 million and (2) limiting to no higher than approximately 1-in-10 thousand [i.e., 100-in-1 million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.

The agency further stated that ''[t]he EPA also considers incidence (the number of persons estimated to suffer cancer or other serious health effects as a result of exposure to a pollutant) to be an important measure of the health risk to the exposed population. Incidence measures the extent of health risks to the exposed population as a whole, by providing an estimate of the occurrence of cancer or other serious health effects in the exposed population.'' *Id.* at 38045.

In the ample margin of safety decision process, the agency again considers all of the health risks and other health

[1] ''Adverse environmental effect'' is defined as any significant and widespread adverse effect, which may be reasonably anticipated to wildlife, aquatic life or natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental qualities over broad areas. CAA section 112(a)(7).

information considered in the first step, including the incremental risk reduction associated with standards more stringent than the MACT standard or a more stringent standard that EPA has determined is necessary to ensure risk is acceptable. In the ample margin of safety analysis, the agency considers additional factors, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors. Considering all of these factors, the agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by CAA section 112(f). 54 FR 38046.

B. What are the source categories and how did the MACT standards regulate their HAP emissions?

1. Acrylic and Modacrylic Fibers Production Source Category

The NESHAP for Acrylic and Modacrylic Fibers Production (''AMF MACT standards''), with the exception of wastewater processes, were promulgated on June 29, 1999 (64 FR 34854), and codified at 40 CFR part 63, subpart YY. The provisions for wastewater were promulgated separately on November 22, 1999 (64 FR 63695), and also codified at 40 CFR part 63, subpart YY. The AMF MACT standards were established in a consolidated rulemaking for certain small source categories consisting of five or fewer major sources. The standards for these source categories were developed under the EPA's Generic MACT program.

Acrylic and modacrylic fibers are manufactured fibers in which the fiber-forming substance is a long-chain synthetic polymer containing acrylonitrile units. The fiber-forming substance in acrylic fibers is composed of at least 85 percent acrylonitrile units by weight, whereas modacrylic fibers are less than 85 but at least 35 percent acrylonitrile units by weight. These acrylic and modacrylic fibers have been used in textiles (including apparel, carpet, awnings, tents, sandbags and auto upholstery) and in industrial applications like concrete reinforcements and industrial filters. These fibers are also used as carbon fiber precursors. Carbon fibers developed from acrylic fibers have high tensile strength and are used in aerospace applications, such as aircraft airframes and engine structures, as well as other applications where light weight and high strength are needed, including racing car bodies, golf club shafts, bicycle frames, fishing rods, automobile springs, sailboat masts and many other items.

The production of AMF involves a polymerization reaction process using either a solution or suspension process in either a batch or continuous mode. The resulting polymer (called ''spin dope'') is spun into fibers using either wet or dry spinning techniques. The spun fibers are then treated to remove excess solvent and to improve fiber characteristics through processes such as washing, stretching, crimping and drying.

Sources of HAP emissions from the production of AMF include: (1) Storage vessels used to store acrylonitrile monomer and co-monomers; (2) process vents on reactors, vessels and storage vessels used for acrylic polymerization, monomer recovery, fiber spinning and solvent recovery operations; (3) fugitive emissions from AMF spinning lines; (4) wastewater treatment systems; and (5) equipment leaks. In the production of AMF, HAP are used primarily as raw materials or reaction inhibitors in the polymerization reaction process. The AMF MACT standards include emission limits for existing and new fiber spinning lines using spin dope from a suspension polymerization process, new sources using a solution polymerization process and for process vents at all facilities. The AMF MACT standards include a combination of equipment standards and work practices for equipment leaks and wastewater, and a combination of equipment standards and emission limits for storage vessels.

To meet the requirements of the AMF MACT standards, the emissions from storage vessels are typically controlled either by floating roofs or fixed roofs that route emissions through a closed vent system to a combustion or recovery device. Emissions from wastewater are generally controlled by equipment modifications (e.g., covers on surface impoundments, containers and drain systems) and pretreatment to remove HAP and biodegradation or pretreatment and discharge to a publicly owned treatment works for biodegradation. Emissions from equipment leaks are typically reduced by leak detection and repair (LDAR) work practice programs. Controls for process vents include combustion or recovery devices, and controls for fiber spinning lines include enclosure of the spinning and washing areas with venting to a combustion or recovery device.

We identified one major source currently operating that is subject to the AMF MACT standards. Acrylonitrile accounts for the majority of the HAP emissions from the AMF processes at this facility (approximately 32 tpy and over 99 percent of the total HAP emissions by mass). The only other HAP reported by this facility is hydroquinone (approximately 3 lbs/yr). As we have stated previously, other organic HAP, where present, would only be associated with those pollutant streams containing acrylonitrile, and where sources control acrylonitrile emissions, comparable levels of control will be achieved for other organic HAP emitted from AMF facilities. See NESHAP: Generic Maximum Achievable Control Technology (Generic MACT); Final Rule, Process Wastewater Provisions; Proposed Rule, 64 FR 34854, 34858 (June 29, 1999). The same is true here—hydroquinone is emitted only from equipment leaks, and equipment leaks are already subject to control through the LDAR program in the rule.

We estimate that the actual emissions levels for all emission sources are representative of the MACT-allowable levels (i.e., the maximum emission levels allowed if in compliance with the MACT standards), as we are not aware of any situations in which the facility is conducting additional work practices or operating a control device such that it achieves a greater emission reduction than required. For more detail about this estimate of the ratio of actual-to-MACT-allowable emissions and the estimation of the MACT-allowable emission levels (and associated risks and impacts), see the memorandum, *MACT Allowable Emissions and Risks for the Acrylic and Modacrylic Fibers, Amino/Phenolic Resins, and Polycarbonate Production Source Categories,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

2. Amino/Phenolic Resins Production

The NESHAP for the Manufacture of Amino/Phenolic Resins (''APR MACT standards''; also referred to as Group III Polymers and Resins) were promulgated on January 20, 2000 (65 FR 3275), and codified at 40 CFR part 63, subpart OOO. The APR MACT standards apply to major sources and regulate HAP emissions resulting from the manufacture of amino resins or phenolic resins. These two products can broadly be classified as formaldehyde-based thermosetting resins. An amino resin is a resin produced through the reaction of formaldehyde, or a formaldehyde-containing solution, with one or more compounds that contain an amino group; these compounds include melamine, urea and urea derivatives. A phenolic resin is a resin that is a condensation product of formaldehyde and phenol, or a formaldehyde substitute and/or a phenol substitute.

Substitutes for formaldehyde include acetaldehyde or furfuraldehyde. Substitutes for phenol include other phenolic-starting compounds such as cresols, xylenols, p-tert-butylphenol, p-phenylphenol and nonylphenol. Formaldehyde, phenol, acetaldehyde and cresols are HAP, but the other reactants are not. Amino/phenolic resins are used in the manufacture of plywood, particle board, adhesives, wood furniture and plastic parts.

Generally, the production of APR entails four processes: (1) Raw material (i.e., solvent and catalyst) storage and refining; (2) polymer formation in a reactor; (3) material recovery; and (4) finishing (e.g., cooling, filtering, drying or pulverizing).

Sources of HAP emissions from the production of APR include reactor batch process vents, non-reactor batch process vents, continuous process vents, equipment leaks, wastewater, storage vessels and heat exchangers. In the production of APR, HAP are used primarily as reactants or extraction solvents. The APR MACT standards include a combination of equipment standards and emission limits for the various emission sources.

To meet the requirements of the APR MACT standards, the typical control techniques used to reduce emissions include LDAR programs for heat exchangers and other equipment. Boilers, combustion and recovery devices may be used to control emissions from batch process vents.

We identified 18 currently-operating facilities subject to the APR MACT standards. Methanol, formaldehyde and phenol account for the majority of the HAP emissions from the APR production processes at these facilities (approximately 357 tpy and 96 percent of the total HAP emissions by mass). A variety of other chemicals are used in the production of APR, and these facilities also reported emissions of 23 other HAP. Emissions of three persistent bioaccumulative HAP (PB–HAP) are reported in the data set for this source category, including lead compounds, cadmium compounds, and polycyclic organic matter (POM) (which includes polyaromatic hydrocarbons (PAH)).

We estimate that the actual emissions levels for all sources are representative of the MACT-allowable levels (i.e., the maximum emission levels allowed if in compliance with the MACT standards), as we are not aware of any situations in which facilities are conducting additional work practices or operating a control device such that it achieves a greater emission reduction than required, except batch process vents. As it is possible that the capture systems and control devices used at some facilities achieve greater emission reductions than what is required by the NESHAP for batch process vents, the MACT-allowable level for organic HAP emissions from reactor batch process vents could be up to 3.4 times the actual emissions and the MACT-allowable level for organic HAP emissions from non-reactor batch process vents could be up to 1.6 times the actual emissions for some facilities in this source category. For more detail about this estimate of the ratio of actual-to-MACT-allowable emissions and the estimation of MACT-allowable emission levels (and associated risks and impacts), see the memorandum, *MACT Allowable Emissions and Risks for the Acrylic and Modacrylic Fibers, Amino/Phenolic Resins, and Polycarbonate Production Source Categories,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

3. Polycarbonate Production Source Category

The NESHAP for Polycarbonate Production (''PC MACT standards''), with the exception of wastewater processes, were promulgated on June 29, 1999 (64 FR 34854), and codified at 40 CFR part 63, subpart YY. The provisions for wastewater were promulgated separately on November 22, 1999 (64 FR 63695), and also codified at 40 CFR part 63, subpart YY. Along with the AMF and other source categories, the PC source category standards were established in a consolidated rulemaking for certain small source categories consisting of five or fewer major sources. The standards for these source categories were developed under the EPA's Generic MACT program.

Polycarbonates are thermoplastic polymers that can be either transparent or opaque, are heat resistant and are scratch and impact resistant. These properties make PC useful in a variety of applications, including as a dielectric in capacitors, car headlights, water bottles, sports helmets, compact discs and DVDs, eyewear lenses, medical devices, toys and other products.

The production of PC involves a polymerization reaction process using either a solution or suspension process in either a batch or continuous mode. All production of PC in the United States is currently based on the polymerization reaction of bisphenols with phosgene in the presence of catalysts, solvents (mainly methylene chloride) and other additives. After the reaction, the resulting polymer is purified and sent to a recovery process to remove remaining methylene chloride. The resin is dried and stored in silos.

All phosgene used as a feedstock for the production of PC is produced onsite to reduce potential hazards associated with transporting and storing this material. The phosgene is fed directly from dedicated phosgene production equipment to PC polymerization process equipment. Consequently, phosgene production is integrated with the production of PC; the production of PC cannot occur without the other process operating. Since dedicated phosgene production units are integral to the PC production process, the EPA considers such phosgene production units to be part of the PC source category (63 FR 55178, October 18, 1998).

Sources of HAP emissions from the production of PC include storage vessels used to store methylene chloride and other organic solvents; process vents on polymerization, polymer solution purification and solvent recovery equipment; wastewater treatment systems; and equipment leaks. In the production of PC, HAP are used as monomers, co-monomers and solvents in the polymerization reaction. The PC MACT standards include emission limits for continuous process vents. The PC MACT standards include a combination of equipment standards and work practices for equipment leaks and wastewater and a combination of equipment standards and emission limits for storage vessels.

To meet the requirements of the PC MACT standards, the typical control devices used to reduce emissions from storage vessels are fixed roofs with emissions routed through a closed vent system to a combustion or recovery device. Emissions from wastewater are generally controlled by equipment modifications (e.g., covers on surface impoundments, containers and drain systems) and treatment to remove the HAP, including steam stripping followed by recovery or combustion of the stripped HAP. Emissions from equipment leaks are typically reduced by leak detection and repair work practice programs. Controls for continuous and batch process vents include combustion or recovery devices.

We identified four currently-operating facilities subject to the PC MACT standards. Methylene chloride, ethyl chloride and triethylamine account for the majority of the HAP emissions from the PC production processes at these facilities (approximately 330 tpy and over 99 percent of the total HAP emissions by mass). Phosgene and chlorobenzene emissions were also reported from the PC production processes at these facilities.

We estimate that the actual emissions levels for all sources are representative of the MACT-allowable levels (i.e., the maximum emission levels allowed if in compliance with the MACT standards), as we are not aware of any situations in which facilities are conducting additional work practices or operating a control device such that it achieves a greater emission reduction than required, except storage vessels. As it is possible that the capture systems and control devices used at some facilities achieve greater HAP emission reductions than what is required by the NESHAP for some storage vessels, depending on the vessel capacity and vapor pressure of the stored material, the MACT-allowable level of HAP emissions could be up to 2.5 times the actual emissions for storage vessels in this source category. For more detail about this estimate of the ratio of actual to MACT-allowable emissions and the estimation of the MACT-allowable emission levels (and associated risks and impacts), see the memorandum, *MACT Allowable Emissions and Risks for the Acrylic and Modacrylic Fibers, Amino/Phenolic Resins, and Polycarbonate Production Source Categories,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

C. What data collection activities were conducted to support this action?

To perform the risk assessments for these source categories, we developed data sets for the APR and PC source categories based on information in the 2005 National Emissions Inventory (NEI) (available at *http://www.epa.gov/ttnchie1/net/2005inventory.html*). The NEI is a database that contains information about sources that emit criteria air pollutants, their precursors and HAP. The database includes estimates of annual air pollutant emissions from point, nonpoint and mobile sources in the 50 states, the District of Columbia, Puerto Rico and the Virgin Islands. The EPA collects this information and releases an updated version of the NEI database every 3 years. We reviewed the NEI data and made adjustments where necessary to ensure the proper facilities were included and to ensure the proper processes were allocated to each source category. We also reviewed the emissions and other data to identify data anomalies that could affect risk estimates, such as whether a pollutant was expected to be emitted from facilities in a source category or whether an emission point was located within a facility's fenceline. The NEI data were also reviewed by industry trade groups, including the American Chemistry Council and the Society of Chemical Manufacturers and Affiliates, as well as several state air agencies. Where the EPA received new information from the industry and air agency review, including updated emissions data and process information, facility closure information and information that some facilities were not subject to the APR or PC MACT standards, we revised the NEI data where we concluded the comments supported such adjustment. We used this reviewed and revised data set to conduct the risk assessment and other analyses for each source category. Due to the conservative nature of our emissions estimates, as described in the emissions data memo cited below, we believe that the data set provides a conservative estimate for use in assessing the risk from these source categories. Further details on the changes made to the 2005 NEI data can be found in the memorandum, *Emissions Data and Acute Risk Factor Used in Residual Risk Modeling: Acrylic and Modacrylic Fibers, Amino/Phenolic Resins, and Polycarbonate Production,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

To perform the risk assessment for the AMF source category, we developed a data set based on information submitted to the EPA for this purpose by the one operating facility in the source category. On February 23, 2012, the EPA visited this facility, Cytec Carbon Fibers, LLC, located in Piedmont, South Carolina. The purpose of this visit was to better understand the acrylic fiber production processes, the controls in place to reduce HAP emissions and the characteristics of the emission points at this facility. As part of this visit, the EPA requested that facility personnel examine the 2008 NEI HAP inventory data that the EPA had for the facility. The EPA provided this data to the facility prior to the site visit to give the facility the opportunity to correct or update the data. After review of the data, the facility submitted updated information, and the updated data formed the basis for the data set used for modeling.

D. What other relevant background information and data are available?

To conduct the technology review, we reviewed information developed since these rules were originally promulgated in 1999 and 2000. Since those rules have been promulgated, the EPA has developed other air toxics regulations for a number of other source categories that emit organic HAP from the same type of emission sources that are present in the three source categories included in this technology review. In these other air toxic regulatory actions, we consistently evaluated any new practices, processes and control techniques. For this technology review, we took into account the regulatory requirements and/or technical analyses associated with these other regulatory actions to identify any practices, processes and control techniques considered in these efforts that could possibly be applied to the source categories addressed in this action.

We also downloaded from the reasonably available control technology (RACT)/best available control technology (BACT)/lowest achievable emission rate (LAER) Clearinghouse for processes in the AMF, APR and PC source categories with permits dating back to the promulgation dates of each MACT regulation. Finally, we conducted an online search of all relevant publications, journals, permits and other documents to identify any new practices, processes or control technologies for HAP emissions sources since the dates of promulgation of the standards.

To evaluate unregulated emission points at facilities regulated by the APR MACT standards, we relied on existing data submitted to the EPA during development of the existing APR MACT standards. To evaluate unregulated emission points for the AMF MACT standards, we relied primarily on data submitted to the EPA by the one operating facility in the source category, along with information gathered during the EPA's visit to the facility.

III. Analytical Procedures

In this section, we describe the analyses performed to support the proposed decisions for the RTR and other issues addressed in this proposal.

A. How did we estimate post-MACT risks posed by the source categories?

The EPA conducted risk assessments that provided estimates of the MIR posed by the HAP emissions from each source in each source category, the hazard index (HI) for chronic exposures to HAP with the potential to cause non-cancer health effects, and the hazard quotient (HQ) for acute exposures to HAP with the potential to cause non-cancer health effects. The assessments also provided estimates of the distribution of cancer risks within the exposed populations, cancer incidence and an evaluation of the potential for adverse environmental effects for each source category. The risk assessment consisted of eight primary steps, as discussed below. The docket for this rulemaking contains the following documents which provide more

information on the risk assessment inputs and models: *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category, Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category,* and *Draft Residual Risk Assessment for the Polycarbonate Production Source Category.* The methods used to assess risks (as described in the eight primary steps below) are consistent with those peer-reviewed by a panel of the EPA's Science Advisory Board (SAB) in 2009 and described in their peer review report issued in 2010 [2]; they are also consistent with the key recommendations contained in that report.

1. How did we estimate actual emissions and identify the emissions release characteristics?

As discussed in section II.C of this preamble, we created the preliminary data sets for the APR and PC source categories using data in the 2005 NEI, supplemented by data collected from industry, industry trade associations and state air agencies (when available). For the AMF source category, we used data collected from the one facility subject to the AMF MACT standards.

2. How did we estimate MACT-allowable emissions?

The available emissions data in the MACT dataset include estimates of the mass of HAP emitted during the specified annual time period. In some cases, these ''actual'' emission levels are lower than the emission levels required to comply with the MACT standards. The emissions level allowed to be emitted by the MACT standards is referred to as the ''MACT-allowable'' emissions level. We discussed the use of both MACT-allowable and actual emissions in the final Coke Oven Batteries residual risk rule (70 FR 19998–19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP residual risk rules (71 FR 34428, June 14, 2006, and 71 FR 76609, December 21, 2006, respectively). In those previous actions, we noted that assessing the risks at the MACT-allowable level is inherently reasonable since these risks reflect the maximum level facilities could emit and still comply with national emission standards. We also explained that it is reasonable to consider actual emissions, where such data are available, in both steps of the risk analysis, in accordance with the Benzene NESHAP approach. (54 FR 38044, September 14, 1989.)

As described above, the actual emissions data were compiled based on the NEI and information gathered from facilities through industrial trade associations and state air agencies for the APR and PC source categories and through the one facility subject to the AMF MACT standards. To estimate emissions at the MACT-allowable level, we developed a ratio of MACT-allowable to actual emissions for each emissions source type in each source category, based on the level of control required by the MACT standards compared to the level of reported actual emissions and available information on the level of control achieved by the emissions controls in use. For example, if there was information to suggest several facilities in a source category were controlling storage tank emissions by 98 percent while the MACT standards required only 92-percent control, we would estimate that MACT-allowable emissions from these emission points could be as much as four times higher (8-percent allowable emissions compared with 2 percent actually emitted), and the ratio of MACT-allowable to actual would be 4:1 for this emission point type at the facilities in this source category. After developing these ratios for each emission point type in each source category, we next applied these ratios on a facility-by-facility basis to the maximum chronic risk values from the inhalation risk assessment to obtain facility-specific maximum risk values based on MACT-allowable emissions. Further explanation of this evaluation is provided in the technical document, *MACT Allowable Emissions and Risks for the Acrylic and Modacrylic Fibers, Amino/Phenolic Resins, and Polycarbonate Production Source Categories,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

3. How did we conduct dispersion modeling, determine inhalation exposures and estimate individual and population inhalation risks?

Both long-term and short-term inhalation exposure concentrations and health risks from the source categories addressed in this proposal were estimated using the Human Exposure Model (Community and Sector HEM–3 version 1.1.0). The HEM–3 performs three primary risk assessment activities: (1) Conducting dispersion modeling to estimate the concentrations of HAP in ambient air; (2) estimating long-term and short-term inhalation exposures to individuals residing within 50 kilometers (km) of the modeled sources [3]; and (3) estimating individual and population-level inhalation risks using the exposure estimates and quantitative dose-response information.

The air dispersion model used by the HEM–3 model (AERMOD) is one of the EPA's preferred models for assessing pollutant concentrations from industrial facilities.[4] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM–3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year of hourly surface and upper air observations for 189 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block [5] internal point locations and populations provides the basis of human exposure calculations (U.S. Census, 2010). In addition, for each census block, the census library includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant unit risk factors and other health benchmarks is used to estimate health risks. These risk factors and health benchmarks are the latest values recommended by the EPA for HAP and other toxic air pollutants. These values are available at *http://www.epa.gov/ttn/atw/toxsource/summary.html* and are discussed in more detail later in this section.

In developing the risk assessment for chronic exposures, we used the estimated annual average ambient air concentration of each HAP emitted by each source for which we have emissions data in the source category. The air concentrations at each nearby census block centroid were used as a surrogate for the chronic inhalation exposure concentration for all the people who reside in that census block. We calculated the MIR for each facility as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week and 52 weeks per year for a 70-year period) exposure to the maximum concentration at the centroid of inhabited census blocks. Individual cancer risks were calculated by multiplying the estimated lifetime

[2] U.S. EPA SAB. *Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies—MACT I Petroleum Refining Sources and Portland Cement Manufacturing,* May 2010.

[3] This metric comes from the Benzene NESHAP. See 54 FR 38046.

[4] U.S. EPA. Revision to the *Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions* (70 FR 68218, November 9, 2005).

[5] A census block is generally the smallest geographic area for which census statistics are tabulated.

exposure to the ambient concentration of each of the HAP (in micrograms per cubic meter ($\mu g/m^3$)) by its unit risk estimate (URE). The URE is an upper bound estimate of an individual's probability of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use URE values from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without EPA IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) URE values, where available. In cases where new, scientifically credible dose response values have been developed in a manner consistent with the EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate.

With regard to formaldehyde (one of the primary HAP emitted by facilities in the APR source category), the EPA determined in 2004 that the Chemical Industry Institute of Toxicology (CIIT) cancer dose-response value for formaldehyde (5.5×10^{-9} per mg/m^3) was based on better science than the IRIS cancer dose-response value (1.3×10^{-5} per mg/m^3). Thus, we switched at that time from using the IRIS value to the CIIT value in risk assessments supporting regulatory actions. Based on subsequent published research, however, the EPA changed its determination regarding the CIIT model and, in 2010, the EPA returned to using the 1991 IRIS value. The EPA has been working on revising the formaldehyde IRIS assessment, and the National Academy of Sciences (NAS) completed its review of the EPA's draft in April of 2011.[6] The EPA is reviewing the public comments and the NAS independent scientific peer review. The EPA will follow the NAS Report recommendations and will present results obtained by implementing the biologically-based dose-response (BBDR) model for formaldehyde. The EPA will compare these estimates with those currently presented in the External Review draft of the assessment and will discuss their strengths and weaknesses. As recommended by the NAS committee, appropriate sensitivity and uncertainty analyses will be an integral component of implementing the BBDR model. The draft IRIS assessment will be revised in response to the NAS peer review, and public comments and the final assessment will be posted on the IRIS database. In the interim, we will present findings using the 1991 IRIS value as a primary estimate, and may also consider other information as the science evolves. As noted above and described in the risk assessment, the IRIS URE for formaldehyde is 1.3×10^{-5} mg/m^3, whereas, the CIIT URE for formaldehyde is 5.5×10^{-9} mg/m^3.

We note here that several carcinogens have a mutagenic mode of action.[7] Of these compounds, POM is emitted by facilities in the APR source category. For these compounds, the age-dependent adjustment factors (ADAF) described in the EPA's *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*[8] were applied. This adjustment has the effect of increasing the estimated lifetime risks for these pollutants by a factor of 1.6.[9] In addition, the EPA expresses carcinogenic potency for compounds in the POM group in terms of benzo[a]pyrene equivalence, based on evidence that carcinogenic POM have the same mutagenic mechanism of action as does benzo[a]pyrene. For this reason, the EPA's Science Policy Council[10] recommends applying the *Supplemental Guidance* to all carcinogenic polycyclic aromatic hydrocarbons for which risk estimates are based on relative potency. Accordingly, we have applied the ADAF to benzo[a]pyrene equivalent portion of all POM mixtures.

The EPA estimated incremental individual lifetime cancer risks associated with emissions from the facilities in the source categories as the sum of the risks for each of the carcinogenic HAP (including those classified as carcinogenic to humans, likely to be carcinogenic to humans and suggestive evidence of carcinogenic potential[11]) emitted by the modeled sources. Cancer incidence and the distribution of individual cancer risks for the population within 50 km of any source were also estimated for the source categories as part of these assessments by summing individual risks. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044) and the limitations of Gaussian dispersion models, including AERMOD.

To assess the risk of non-cancer health effects from chronic exposures, we summed the HQ for each of the HAP that affects a common target organ system to obtain the HI for that target organ system (or target organ-specific HI, TOSHI). The HQ is the estimated exposure divided by the chronic reference level, which is a value selected from one of several sources. First, the chronic reference level can be the EPA reference concentration (RfC) (*http://www.epa.gov/riskassessment/glossary.htm*), defined as ''an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.'' Alternatively, in cases where an RfC from the EPA's IRIS database is not available or where the EPA determines that using a value other than the RfC is appropriate, the chronic reference level can be a value from the following prioritized sources: (1) The Agency for Toxic Substances and Disease Registry Minimum Risk Level (*http://www.atsdr.cdc.gov/mrls/index.asp*), which is defined as ''an estimate of daily human exposure to a hazardous substance that is likely to be without an appreciable risk of adverse non-cancer health effects (other than cancer) over a specified duration of exposure''; (2) the CalEPA Chronic Reference Exposure Level (REL) (*http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf*), which is defined as ''the concentration level (that is expressed in units of micrograms per cubic meter ($\mu g/m^3$) for inhalation exposure and in a dose expressed in units of milligram per kilogram-day (mg/kg-day) for oral exposures), at or

[6] *http://www.nap.edu/catalog.php?record_id=13142.*

[7] U.S. EPA, 2006. Performing risk assessments that include carcinogens described in the *Supplemental Guidance* as having a mutagenic mode of action. *Science Policy Council Cancer Guidelines Implementation Workgroup Communication II:* Memorandum from W.H. Farland dated June 14, 2006. *http://epa.gov/osa/spc/pdfs/CGIWGCommunication_II.pdf.*

[8] U.S. EPA, 2005. Supplemental Guidance for Assessing Early-Life Exposure to Carcinogens. EPA/630/R–03/003F. *http://www.epa.gov/ttn/atw/childrens_supplement_final.pdf.*

[9] Only one of these mutagenic compounds, benzo[a]pyrene, is emitted by any of the sources covered by this proposal.

[10] U.S. EPA, 2005. Science Policy Council Cancer Guidelines Implementation Workgroup Communication I: Memorandum from W.H. Farland dated October 4, 2005, to Science Policy Council. *http://www.epa.gov/osa/spc/pdfs/canguid1.pdf.*

[11] These classifications also coincide with the terms ''known carcinogen, probable carcinogen, and possible carcinogen,'' respectively, which are the terms advocated in the EPA's previous *Guidelines for Carcinogen Risk Assessment,* published in 1986 (51 FR 33992, September 24, 1986). Summing the risks of these individual compounds to obtain the cumulative cancer risks is an approach that was recommended by the EPA's SAB in their 2002 peer review of the EPA's National Air Toxics Assessment (NATA) entitled, *NATA—Evaluating the National-scale Air Toxics Assessment 1996 Data—an SAB Advisory,* available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf.*

below which no adverse health effects are anticipated for a specified exposure duration''; or (3), as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA, in place of or in concert with other values.

The EPA also evaluated screening estimates of acute exposures and risks for each of the HAP at the point of highest off-site exposure for each facility (i.e., not just the census block centroids), assuming that a person is located at this spot at a time when both the peak (hourly) emission rates and worst-case dispersion conditions occur. The acute HQ is the estimated acute exposure divided by the acute dose-response value. In each case, the EPA calculated acute HQ values using best available, short-term dose-response values. These acute dose-response values, which are described below, include the acute REL, acute exposure guideline levels (AEGL) and emergency response planning guidelines (ERPG) for 1-hour exposure durations. As discussed below, we used conservative assumptions for emission rates, meteorology and exposure location for our acute analysis.

As described in the *CalEPA's Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants,* an acute REL value (*http://www.oehha.ca.gov/air/pdf/acuterel.pdf*) is defined as ''the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration.'' *Id.* at page 2. Acute REL values are based on the most sensitive, relevant, adverse health effect reported in the peer-reviewed medical and toxicological literature. Acute REL values are designed to protect the most sensitive individuals in the population through the inclusion of margins of safety. Because margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL value does not automatically indicate an adverse health impact.

AEGL values were derived in response to recommendations from the National Research Council (NRC). As described in *Standing Operating Procedures (SOP) of the National Advisory Committee on Acute Exposure Guideline Levels for Hazardous Substances* (*http://www.epa.gov/opptintr/aegl/pubs/sop.pdf*),[12] ''the NRC's previous name for acute exposure levels—community emergency exposure levels—was replaced by the term AEGL to reflect the broad application of these values to planning, response and prevention in the community, the workplace, transportation, the military and the remediation of Superfund sites.'' *Id.* at 2. This document also states that AEGL values ''represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 minutes to eight hours.'' *Id.* at 2.

The document lays out the purpose and objectives of AEGL by stating that ''the primary purpose of the AEGL program and the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances is to develop guideline levels for once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals.'' *Id.* at 21. In detailing the intended application of AEGL values, the document states that ''[i]t is anticipated that the AEGL values will be used for regulatory and nonregulatory purposes by U.S. Federal and state agencies, and possibly the international community in conjunction with chemical emergency response, planning and prevention programs. More specifically, the AEGL values will be used for conducting various risk assessments to aid in the development of emergency preparedness and prevention plans, as well as real-time emergency response actions, for accidental chemical releases at fixed facilities and from transport carriers.'' *Id.* at 31.

The AEGL–1 value is then specifically defined as ''the airborne concentration (expressed as ppm (parts per million) or mg/m^3 (milligrams per cubic meter)) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.'' *Id.* at 3. The document also notes that, ''Airborne concentrations below AEGL–1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects.'' *Id.* Similarly, the document defines AEGL–2 values as ''the airborne concentration (expressed as parts per million or milligrams per cubic meter) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.'' *Id.*

ERPG values are derived for use in emergency response, as described in the American Industrial Hygiene Association's ERP Committee document entitled, *ERPGS Procedures and Responsibilities* (*http://sp4m.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documents/ERP-SOPs2006.pdf*), which states that, ''Emergency Response Planning Guidelines were developed for emergency planning and are intended as health based guideline concentrations for single exposures to chemicals.'' [13] *Id.* at 1. The ERPG–1 value is defined as ''the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor.'' *Id.* at 2. Similarly, the ERPG–2 value is defined as ''the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.'' *Id.* at 1.

As can be seen from the definitions above, the AEGL and ERPG values include the similarly-defined severity levels 1 and 2. For many chemicals, a severity level 1 value AEGL or ERPG has not been developed because the types of effects for these chemicals are not consistent with the AEGL–1/ERPG–1 definitions; in these instances, we compare higher severity level AEGL–2 or ERPG–2 values to our modeled exposure levels to screen for potential acute concerns. When AEGL–1/ERPG–1 values are available, they are used in our acute risk assessments.

Acute REL values for 1-hour exposure durations are typically lower than their corresponding AEGL–1 and ERPG–1 values. Even though their definitions are slightly different, AEGL–1 values are often the same as the corresponding ERPG–1 values, and AEGL–2 values are often equal to ERPG–2 values. Maximum HQ values from our acute screening risk assessments typically result when basing them on the acute

[12] NAS, 2001. *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals,* page 2.

[13] *ERP Committee Procedures and Responsibilities.* November 1 2006. American Industrial Hygiene Association.

REL value for a particular pollutant. In cases where our maximum acute HQ value exceeds 1, we also report the HQ value based on the next highest acute dose-response value (usually the AEGL–1 and/or the ERPG–1 value).

To develop screening estimates of acute exposures in the absence of hourly emissions data, generally we first develop estimates of maximum hourly emissions rates by multiplying the average actual annual hourly emissions rates by a default factor to cover routinely variable emissions. We choose the factor to use partially based on process knowledge and engineering judgment. The factor chosen also reflects a Texas study of short-term emissions variability, which showed that most peak emission events in a heavily-industrialized four-county area (Harris, Galveston, Chambers and Brazoria Counties, Texas) were less than twice the annual average hourly emissions rate. The highest peak emissions event was 74 times the annual average hourly emissions rate, and the 99th percentile ratio of peak hourly emissions rate to the annual average hourly emissions rate was 9.[14] Considering this analysis, to account for more than 99 percent of the peak hourly emissions, we apply a conservative screening multiplication factor of 10 to the average annual hourly emissions rate in our acute exposure screening assessments as our default approach. However, we use a factor other than 10 if we have information that indicates that a different factor is appropriate for a particular source category. For these source categories, a factor of 10 was applied to all emissions, with one exception. A factor of two was applied for emissions from equipment leaks for all three source categories. A further discussion of why these factors were chosen can be found in the memorandum, *Emissions Data and Acute Risk Factor Used in Residual Risk Modeling: Acrylic and Modacrylic Fibers, Amino/Phenolic Resins, and Polycarbonate Production,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

As part of our acute risk assessment process, for cases where acute HQ values from the screening step were less than or equal to 1 (even under the conservative assumptions of the screening analysis), acute impacts were deemed negligible and no further analysis was performed. In cases where an acute HQ from the screening step was greater than 1, additional site-specific data were considered to develop a more refined estimate of the potential for acute impacts of concern. For these source categories, the data refinements employed consisted of using a peak-to-mean hourly emissions ratio based on source category-specific knowledge or data (rather than the default factor of 10) and using the site-specific facility layout to distinguish facility property from an area where the public could be exposed. These refinements are discussed more fully in the *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category, Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category,* and *Draft Residual Risk Assessment for the Polycarbonate Production Source Category,* which are available in the docket for this action. Ideally, we would prefer to have continuous measurements over time to see how the emissions vary by each hour over an entire year. Having a frequency distribution of hourly emissions rates over a year would allow us to perform a probabilistic analysis to estimate potential threshold exceedances and their frequency of occurrence. Such an evaluation could include a more complete statistical treatment of the key parameters and elements adopted in this screening analysis. Recognizing that this level of data is rarely available, we instead rely on the multiplier approach.

To better characterize the potential health risks associated with estimated acute exposures to HAP, and in response to a key recommendation from the SAB's peer review of the EPA's RTR risk assessment methodologies,[15] we generally examine a wider range of available acute health metrics (e.g., RELs, AEGLs) than we do for our chronic risk assessments. This is in response to the SAB's acknowledgement that there are generally more data gaps and inconsistencies in acute reference values than there are in chronic reference values. In some cases, when Reference Value Arrays [16] for HAP have been developed, we consider additional acute values (i.e., occupational and international values) to provide a more complete risk characterization. As a result, for most chemicals, the 15-minute occupational ceiling values are set at levels higher than a one-hour AEGL–1, making comparisons to them irrelevant unless the AEGL–1 or ERPG–1 levels are exceeded (U.S. EPA 2009). Such is not the case when comparing the available acute inhalation health effect reference values for formaldehyde (U.S. EPA 2009). See section V.B.2 of this preamble for additional information on the acute dose-response values for formaldehyde.

4. How did we conduct the multipathway exposure and risk screening?

The EPA conducted a screening analysis examining the potential for significant human health risks due to exposures via routes other than inhalation (i.e., ingestion). We first determined whether any sources in the source categories emitted any hazardous air pollutants known to be persistent and bioaccumulative in the environment (PB–HAP). The PB–HAP compounds or compound classes are identified for the screening from the EPA's Air Toxics Risk Assessment Library (available at *http://www.epa.gov/ttn/fera/risk_atra_vol1.html*).

For the AMF and PC source categories, we did not identify emissions of any PB–HAP. Because we did not identify PB–HAP emissions, no further evaluation of multipathway risk was conducted for these source categories.

For the APR source category, we identified emissions of lead compounds (1 facility), cadmium compounds (2 facilities) and POM (analyzed as benzo(a)pyrene toxic equivalency quotient (TEQ)) (2 facilities). Because one or more of these PB–HAP are emitted by at least one facility in the APR source category, we proceeded to the second step of the evaluation. In this step, we determined whether the facility-specific emissions rates of each of the emitted PB–HAP were large enough to create the potential for significant non-inhalation human health risks under reasonable worst-case conditions. To facilitate this step, we developed emissions rate thresholds for each PB–HAP using a hypothetical upper-end screening exposure scenario developed for use in conjunction with the EPA's Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure (TRIM.FaTE) model. We conducted a sensitivity analysis on the screening scenario to ensure that its key design parameters would represent the upper end of the

[14] See *http://www.tceq.state.tx.us/compliance/field_ops/eer/index.html* or docket to access the source of these data.

[15] The SAB peer review of RTR Risk Assessment Methodologies is available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf.*

[16] U.S. EPA. (2009) Chapter 2.9 Chemical Specific Reference Values for Formaldehyde in Graphical Arrays of Chemical-Specific Health Effect Reference Values for Inhalation Exposures (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R–09/061, and available online at *http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=211003.*

range of possible values, such that it would represent a conservative but not impossible scenario. The facility-specific emissions rates of each of the PB–HAP were compared to the emission rate threshold values for each of the PB–HAP identified to assess the potential for significant human health risks via non-inhalation pathways. We call this application of the TRIM.FaTE model the Tier I TRIM-Screen.

For the purpose of developing emissions rates for our Tier I TRIM-Screen, we derived emission levels for each PB–HAP (other than lead) at which the maximum excess lifetime cancer risk would be 1-in-1 million or, for HAP that cause non-cancer health effects, the maximum hazard quotient would be 1. If the emissions rate of any PB–HAP exceeds the Tier I screening emissions rate for any facility, we conduct a Tier II multipathway screen. In the Tier II screen, the location of each facility that exceeds the Tier I emission rate is used to refine the assumptions associated with the environmental scenario while maintaining the exposure scenario assumptions. We then adjust the risk-based Tier I screening level for each PB–HAP for each facility based on an understanding of how exposure concentrations estimated for the screening scenario change with meteorology and environmental assumptions. PB–HAP emissions that do not exceed these new Tier II screening levels are considered to pose no unacceptable risks. When facilities exceed the Tier II screening levels, it does not mean that multipathway impacts are significant, only that we cannot rule out that possibility based on the results of the screen. These facilities may be further evaluated for multipathway risks using the TRIM.FaTE model.

In evaluating the potential multi-pathway risk from emissions of lead compounds, rather than developing a screening emissions rate for them, we compared maximum estimated chronic inhalation exposures with the level of the current National Ambient Air Quality Standard (NAAQS) for lead. Values below the level of the primary (health-based) lead NAAQS were considered to have a low potential for multi-pathway risk.

For further information on the multipathway analysis approach, see the *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category, Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category,* and *Draft Residual Risk Assessment for the Polycarbonate Production Source Category,* which are available in the docket for this action.

5. How did we assess risks considering emissions control options?

In addition to assessing baseline inhalation risks and screening for potential multipathway risks, we also estimated risks considering the potential emissions reductions that would be achieved by the control options under consideration. In these cases, the expected emissions reductions were applied to the specific HAP and emissions points in the source category dataset to develop corresponding estimates of risk and incremental risk reductions.

6. How did we conduct the environmental risk screening assessment?

a. Adverse Environmental Effect

The EPA has developed a screening approach to examine the potential for adverse environmental effects as required under section 112(f)(2)(A) of the CAA. Section 112(a)(7) of the CAA defines ''adverse environmental effect'' as ''any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas.''

b. Environmental HAP

The EPA focuses on seven HAP, which we refer to as ''environmental HAP,'' in its screening analysis: five persistent bioaccumulative HAP (PB–HAP) and two acid gases. The five PB–HAP are cadmium, dioxins/furans, polycyclic organic matter (POM), mercury (both inorganic mercury and methyl mercury) and lead. The two acid gases are hydrogen chloride (HCl) and hydrogen fluoride (HF). The rationale for including these seven HAP in the environmental risk screening analysis is presented below.

HAP that persist and bioaccumulate are of particular environmental concern because they accumulate in the soil, sediment and water. The PB–HAP are taken up, through sediment, soil, water, and/or ingestion of other organisms, by plants or animals (e.g., small fish) at the bottom of the food chain. As larger and larger predators consume these organisms, concentrations of the PB–HAP in the animal tissues increases as does the potential for adverse effects. The five PB–HAP we evaluate as part of our screening analysis account for 99.8 percent of all PB–HAP emissions (on a mass basis from the 2005 NEI).

In addition to accounting for almost all of the mass of PB–HAP emitted, we note that the TRIM.Fate model that we use to evaluate multipathway risk allows us to estimate concentrations of cadmium compounds, dioxins/furans, POM and mercury in soil, sediment and water. For lead, we currently do not have the ability to calculate these concentrations using the TRIM.Fate model. Therefore, to evaluate the potential for adverse environmental effects from lead, we compare the HEM modeled inhalation exposures from the source category emissions of lead with the level of the secondary National Ambient Air Quality Standard (NAAQS) for lead.[17] We consider values below the level of the secondary lead NAAQS to be unlikely to cause adverse environmental effects.

Due to their well-documented potential to cause direct damage to terrestrial plants, we include two acid gases, HCl and HF, in the environmental screening analysis. According to the 2005 NEI, HCl and HF account for about 99 percent (on a mass basis) of the total acid gas HAP emitted by stationary sources. In addition to the potential to cause direct damage to plants, high concentrations of HF in the air have been linked to fluorosis in livestock. Air concentrations of these HAP are already calculated as part of the human multipathway exposure and risk screening analysis using the HEM3–AERMOD air dispersion model, and we are able to use the air dispersion modeling to estimate the potential for an adverse environmental effect.

The EPA acknowledges that other HAP beyond the seven HAP discussed above may have the potential to cause adverse environmental effects. Therefore, the EPA may include other relevant HAP in its environmental risk screening in the future, as modeling science and resources allow. The EPA invites comment on the extent to which other HAP emitted by the source category may cause adverse environmental effects. Such information should include references to peer-reviewed ecological effects benchmarks that are of sufficient quality for making regulatory decisions, as well as information on the presence of

[17] The secondary lead NAAQS is a reasonable measure of determining whether there is an adverse environmental effect since it was established considering ''effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.''

organisms located near facilities within the source category that such benchmarks indicate could be adversely affected.

c. Ecological Assessment Endpoints and Benchmarks for PB–HAP

An important consideration in the development of the EPA's screening methodology is the selection of ecological assessment endpoints and benchmarks. Ecological assessment endpoints are defined by the ecological entity (e.g., aquatic communities including fish and plankton) and its attributes (e.g., frequency of mortality). Ecological assessment endpoints can be established for organisms, populations, communities or assemblages, and ecosystems.

For PB–HAP except for lead, we evaluated the following community-level ecological assessment endpoints to screen for organisms directly exposed to HAP in soils, sediment and water:

- Local terrestrial communities (i.e., soil invertebrates, plants) and populations of small birds and mammals that consume soil invertebrates exposed to PB–HAP in the surface soil.
- Local benthic (i.e., bottom sediment dwelling insects, amphipods, isopods and crayfish) communities exposed to PB–HAP in sediment in nearby water bodies.
- Local aquatic (water-column) communities (including fish and plankton) exposed to PB–HAP in nearby surface waters.

For PB–HAP, we also evaluated the following population-level ecological assessment endpoint to screen for indirect HAP exposures of top consumers via the bioaccumulation of HAP in food chains:

- Piscivorous (i.e., fish-eating) wildlife consuming PB–HAP-contaminated fish from nearby water bodies.

For cadmium compounds, dioxins/furans, POM and mercury, we identified the available ecological benchmarks for each assessment endpoint. An ecological benchmark represents a concentration of HAP (e.g., 0.77 ug of HAP per liter of water) that has been linked to a particular environmental effect level (e.g., a no-observed-adverse-effect level (NOAEL)) through scientific study. For PB–HAP we identified, where possible, ecological benchmarks at the following effect levels:

Probable effect levels (PEL): Level above which adverse effects are expected to occur frequently.

Lowest-observed-adverse-effect level (LOAEL): The lowest exposure level tested at which there are biologically significant increases in frequency or severity of adverse effects.

No-observed-adverse-effect levels (NOAEL): The highest exposure level tested at which there are no biologically significant increases in the frequency or severity of adverse effect.

We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint. In general, the EPA sources that are used at a programmatic level (e.g., Office of Water, Superfund Program) were used, if available. If not, the EPA benchmarks used in regional programs (e.g., Superfund) were used. If benchmarks were not available at a programmatic or regional level, we used benchmarks developed by other federal agencies (e.g., NOAA) or state agencies.

Benchmarks for all effect levels are not available for all PB–HAP and assessment endpoints. In cases where multiple effect levels were available for a particular PB–HAP and assessment endpoint, we use all of the available effect levels to help us to determine whether ecological risks exist and, if so, whether the risks could be considered significant and widespread.

d. Ecological Assessment Endpoints and Benchmarks for Acid Gases

The environmental screening analysis also evaluated potential damage and reduced productivity of plants due to direct exposure to acid gases in the air. For acid gases, we evaluated the following ecological assessment endpoint:

- Local terrestrial plant communities with foliage exposed to acidic gaseous HAP in the air.

The selection of ecological benchmarks for the effects of acid gases on plants followed the same approach as for PB–HAP (i.e., we examine all of the available benchmarks). For HCl, the EPA identified chronic benchmark concentrations. We note that the benchmark for chronic HCl exposure to plants is greater than the reference concentration for chronic inhalation exposure for human health. This means that where EPA includes regulatory requirements to prevent an exceedance of the reference concentration for human health, additional analyses for adverse environmental effects of HCL would not be necessary.

For HF, EPA identified chronic benchmark concentrations for plants and evaluated chronic exposures to plants in the screening analysis. High concentrations of HF in the air have also been linked to fluorosis in livestock. However, the HF concentrations at which fluorosis in livestock occur are higher than those at which plant damage begins. Therefore, the benchmarks for plants are protective of both plants and livestock.

e. Screening Methodology

For the environmental risk screening analysis, EPA first determined whether any facilities in the AMF, APR and PC source categories emitted any of the seven environmental HAP. For the AMF and PC source categories, we did not identify emissions of any of the seven environmental HAP included in the screen. Because we did not identify environmental HAP emissions, no further evaluation of environmental risk was conducted for those source categories. For the APR source category, we identified emissions of lead compounds (1 facility), cadmium compounds (2 facilities) and POM (analyzed as benzo(a)pyrene TEQ) (2 facilities).

Because one or more of the seven environmental HAP evaluated are emitted by at least one facility in the APR source category, we proceeded to the second step of the evaluation.

f. PB–HAP Methodology

For cadmium, mercury, POM and dioxins/furans, the environmental screening analysis consists of two tiers, and lead is analyzed differently as discussed earlier. In the first tier, we determined whether the maximum facility-specific emission rates of each of the emitted environmental HAP were large enough to create the potential for adverse environmental effects under reasonable worst-case environmental conditions. These are the same environmental conditions used in the human multipathway exposure and risk screening analysis.

To facilitate this step, TRIM.FaTE was run for each PB–HAP under hypothetical environmental conditions designed to provide conservatively high HAP concentrations. The model was set to maximize runoff from terrestrial parcels into the modeled lake, which in turn, maximized the chemical concentrations in the water, the sediments, and the fish. The resulting media concentrations were then used to back-calculate a screening threshold emission rate that corresponded to the relevant exposure benchmark concentration value for each assessment endpoint. To assess emissions from a facility, the reported emission rate for each PB–HAP was compared to the screening threshold emission rate for that PB–HAP for each assessment endpoint. If emissions from a facility do not exceed the Tier I threshold, the

facility ''passes'' the screen, and therefore, is not evaluated further under the screening approach. If emissions from a facility exceed the Tier I threshold, we evaluate the facility further in Tier II.

In Tier II of the environmental screening analysis, the screening emission thresholds are adjusted to account for local meteorology and the actual location of lakes in the vicinity of facilities that did not pass the Tier I screen. The modeling domain for each facility in the Tier II analysis consists of eight octants. Each octant contains 5 modeled soil concentrations at various distances from the facility (5 soil concentrations × 8 octants = total of 40 soil concentrations per facility) and 1 lake with modeled concentrations for water, sediment and fish tissue. In the Tier II environmental risk screening analysis, the 40 soil concentration points are averaged to obtain an average soil concentration for each facility for each PB–HAP. For the water, sediment and fish tissue concentrations, the highest value for each facility for each pollutant is used. If emission concentrations from a facility do not exceed the Tier II threshold, the facility passes the screen, and typically is not evaluated further. If emissions from a facility exceed the Tier II threshold, the facility does not pass the screen and, therefore, may have the potential to cause adverse environmental effects. Such facilities are evaluated further to investigate factors such as the magnitude and characteristics of the area of exceedance.

g. Acid Gas Methodology

The environmental screening analysis evaluates the potential phytotoxicity and reduced productivity of plants due to chronic exposure to acid gases. The environmental risk screening methodology for acid gases is a single-tier screen that compares the average off-site ambient air concentration over the modeling domain to ecological benchmarks for each of the acid gases. Because air concentrations are compared directly to the ecological benchmarks, emission-based thresholds are not calculated for acid gases as they are in the ecological risk screening methodology for PB–HAPs.

For purposes of ecological risk screening, EPA identifies a potential for adverse environmental effects to plant communities from exposure to acid gases when the average concentration of the HAP around a facility exceeds the LOAEL ecological benchmark. In such cases, we further investigate factors such as the magnitude and characteristics of the area of exceedance (e.g., land use of exceedance area, size of exceedance area) to determine if there is an adverse environmental effect.

For further information on the environmental screening analysis approach, see the *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category, Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category,* and *Draft Residual Risk Assessment for the Polycarbonate Production Source Category,* which are available in the docket for this action.

7. How did we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire ''facility,'' where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category emission points of interest, but also emissions of HAP from all other emissions sources at the facility for which we have data. The emissions data for generating these ''facility-wide'' risks were obtained from the 2005 NEI for the APR and PC source categories, and from the 2008 NEI for the AMF source category. We analyzed risks due to the inhalation of HAP that are emitted ''facility-wide'' for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, the modeled source category risks were compared to the facility-wide risks to determine the portion of facility-wide risks that could be attributed to each of the three source categories addressed in this proposal. The *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category, Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category,* and *Draft Residual Risk Assessment for the Polycarbonate Production Source Category,* available through the docket for this action, provide the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

8. How did we consider uncertainties in risk assessment?

In the Benzene NESHAP, we concluded that risk estimation uncertainty should be considered in our decision-making under the ample margin of safety framework. Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health protective and environmentally protective. A brief discussion of the uncertainties in the emissions datasets, dispersion modeling, inhalation exposure estimates and dose-response relationships follows below. A more thorough discussion of these uncertainties is included in the *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category, Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category,* and *Draft Residual Risk Assessment for the Polycarbonate Production Source Category,* which are available in the docket for this action (EPA–HQ–OAR–2012–0133).

a. Uncertainties in the Emissions Datasets

Although the development of the RTR datasets involved quality assurance/quality control processes, the accuracy of emissions values will vary depending on the source of the data, the degree to which data are incomplete or missing, the degree to which assumptions made to complete the datasets are accurate, errors in emissions estimates and other factors. The emission estimates considered in this analysis generally are annual totals for certain years, and they do not reflect short-term fluctuations during the course of a year or variations from year to year. The estimates of peak hourly emissions rates for the acute effects screening assessment were based on an emission adjustment factor applied to the average annual hourly emissions rates, which are intended to account for emission fluctuations due to normal facility operations.

b. Uncertainties in Dispersion Modeling

We recognize there is uncertainty in ambient concentration estimates associated with any model, including the EPA's recommended regulatory dispersion model, AERMOD. In using a model to estimate ambient pollutant concentrations, the user chooses certain options to apply. For RTR assessments, we select some model options that have the potential to overestimate ambient air concentrations (e.g., not including plume depletion or pollutant transformation). We select other model options that have the potential to underestimate ambient impacts (e.g., not including building downwash). Other options that we select have the potential to either under- or overestimate ambient levels (e.g., meteorology and receptor

locations). On balance, considering the directional nature of the uncertainties commonly present in ambient concentrations estimated by dispersion models, the approach we apply in the RTR assessments should yield unbiased estimates of ambient HAP concentrations.

c. Uncertainties in Inhalation Exposure

The EPA did not include the effects of human mobility on exposures in the assessment. Specifically, short-term mobility and long-term mobility between census blocks in the modeling domain were not considered.[18] The approach of not considering short or long-term population mobility does not bias the estimate of the theoretical MIR (by definition), nor does it affect the estimate of cancer incidence because the total population number remains the same. It does, however, affect the shape of the distribution of individual risks across the affected population, shifting it toward higher estimated individual risks at the upper end and reducing the number of people estimated to be at lower risks, thereby increasing the estimated number of people at specific high risk levels (e.g., 1-in-10 thousand or 1-in-1 million).

In addition, the assessment predicted the chronic exposures at the centroid of each populated census block as surrogates for the exposure concentrations for all people living in that block. Using the census block centroid to predict chronic exposures tends to over-predict exposures for people in the census block who live farther from the facility and under-predict exposures for people in the census block who live closer to the facility. Thus, using the census block centroid to predict chronic exposures may lead to a potential understatement or overstatement of the true maximum impact, but is an unbiased estimate of average risk and incidence. We reduce this uncertainty by analyzing large census blocks near facilities using aerial imagery and adjusting the location of the block centroid to better represent the population in the block, as well as adding additional receptors where the block population is not well represented by a single location.

In addition, the assessment predicted the chronic exposures at the centroid of each populated census block as surrogates for the exposure concentrations for all people living in that block. Using the census block centroid to predict chronic exposures tends to over-predict exposures for people in the census block who live farther from the facility and under-predict exposures for people in the census block who live closer to the facility. Thus, using the census block centroid to predict chronic exposures may lead to a potential understatement or overstatement of the true maximum impact, but is an unbiased estimate of average risk and incidence. We reduce this uncertainty by analyzing large census blocks near facilities using aerial imagery and adjusting the location of the block centroid to better represent the population in the block, as well as adding additional receptors where the block population is not well represented by a single location.

The assessment evaluates the cancer inhalation risks associated with pollutant exposures over a 70-year period, which is the assumed lifetime of an individual. In reality, both the length of time that modeled emissions sources at facilities actually operate (i.e., more or less than 70 years) and the domestic growth or decline of the modeled industry (i.e., the increase or decrease in the number or size of domestic facilities) will influence the future risks posed by a given source or source category. Depending on the characteristics of the industry, these factors will, in most cases, result in an overestimate both in individual risk levels and in the total estimated number of cancer cases. However, in the unlikely scenario where a facility maintains, or even increases, its emissions levels over a period of more than 70 years, residents live beyond 70 years at the same location, and the residents spend most of their days at that location, then the cancer inhalation risks could potentially be underestimated. However, annual cancer incidence estimates from exposures to emissions from these sources would not be affected by the length of time an emissions source operates.

The exposure estimates used in these analyses assume chronic exposures to ambient (outdoor) levels of pollutants. Because most people spend the majority of their time indoors, actual exposures may not be as high, depending on the characteristics of the pollutants modeled. For many of the HAP, indoor levels are roughly equivalent to ambient levels, but for very reactive pollutants or larger particles, indoor levels are typically lower. This factor has the potential to result in an overstatement of 25 to 30 percent of exposures.[19]

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that should be highlighted. The accuracy of an acute inhalation exposure assessment depends on the simultaneous occurrence of independent factors that may vary greatly, such as hourly emissions rates, meteorology and human activity patterns. In this assessment, we assume that individuals remain for 1 hour at the point of maximum ambient concentration as determined by the co-occurrence of peak emissions and worst-case meteorological conditions. These assumptions would tend to be worst-case actual exposures as it is unlikely that a person would be located at the point of maximum exposure during the time of worst-case impact.

d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for cancer effects from chronic exposures and non-cancer effects from both chronic and acute exposures. Some uncertainties may be considered quantitatively, and others generally are expressed in qualitative terms. We note as a preface to this discussion a point on dose-response uncertainty that is brought out in the EPA's *2005 Cancer Guidelines;* namely, that ''the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective'' (*EPA 2005 Cancer Guidelines,* pages 1–7). This is the approach followed here as summarized in the next several paragraphs. A complete detailed discussion of uncertainties and variability in dose-response relationships is given in the *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category, Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category,* and *Draft Residual Risk Assessment for the Polycarbonate Production Source Category,* which are available in the docket for this action.

Cancer URE values used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk. That is, they

[18] Short-term mobility is movement from one microenvironment to another over the course of hours or days. Long-term mobility is movement from one residence to another over the course of a lifetime.

[19] U.S. EPA. *National-Scale Air Toxics Assessment for 1996.* (EPA 453/R–01–003; January 2001; page 85.)

represent a ''plausible upper limit to the true value of a quantity'' (although this is usually not a true statistical confidence limit).[20] In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could be greater.[21] When developing an upper bound estimate of risk and to provide risk values that do not underestimate risk, health-protective default approaches are generally used. To err on the side of ensuring adequate health protection, the EPA typically uses the upper bound estimates rather than lower bound or central tendency estimates in our risk assessments, an approach that may have limitations for other uses (e.g., priority-setting or expected benefits analysis).

Chronic non-cancer RfC and reference dose (RfD) values represent chronic exposure levels that are intended to be health-protective levels. Specifically, these values provide an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure (RfC) or a daily oral exposure (RfD) to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. To derive values that are intended to be ''without appreciable risk,'' the methodology relies upon an uncertainty factor (UF) approach (U.S. EPA, 1993, 1994) which considers uncertainty, variability and gaps in the available data. The UF are applied to derive reference values that are intended to protect against appreciable risk of deleterious effects. The UF are commonly default values,[22] e.g., factors of 10 or 3, used in the absence of compound-specific data; where data are available, UF may also be developed using compound-specific information. When data are limited, more assumptions are needed and more UF are used. Thus, there may be a greater tendency to overestimate risk in the sense that further study might support development of reference values that are higher (i.e., less potent) because fewer default assumptions are needed. However, for some pollutants, it is possible that risks may be underestimated.

While collectively termed ''UF,'' these factors account for a number of different quantitative considerations when using observed animal (usually rodent) or human toxicity data in the development of the RfC. The UF are intended to account for: (1) Variation in susceptibility among the members of the human population (i.e., inter-individual variability); (2) uncertainty in extrapolating from experimental animal data to humans (i.e., interspecies differences); (3) uncertainty in extrapolating from data obtained in a study with less-than-lifetime exposure (i.e., extrapolating from sub-chronic to chronic exposure); (4) uncertainty in extrapolating the observed data to obtain an estimate of the exposure associated with no adverse effects; and (5) uncertainty when the database is incomplete or there are problems with the applicability of available studies.

Many of the UF used to account for variability and uncertainty in the development of acute reference values are quite similar to those developed for chronic durations, but they more often use individual UF values that may be less than 10. The UF are applied based on chemical-specific or health effect-specific information (e.g., simple irritation effects do not vary appreciably between human individuals, hence a value of 3 is typically used), or based on the purpose for the reference value (see the following paragraph). The UF applied in acute reference value derivation include: (1) Heterogeneity among humans; (2) uncertainty in extrapolating from animals to humans; (3) uncertainty in lowest observed adverse effect (exposure) level to no observed adverse effect (exposure) level adjustments; and (4) uncertainty in accounting for an incomplete database on toxic effects of potential concern. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (e.g., 4 hours) to derive an acute reference value at another exposure duration (e.g., 1 hour).

Not all acute reference values are developed for the same purpose and care must be taken when interpreting the results of an acute assessment of human health effects relative to the reference value or values being exceeded. Where relevant to the estimated exposures, the lack of short-term dose-response values at different levels of severity should be factored into the risk characterization as potential uncertainties.

Although every effort is made to identify appropriate human health effect dose-response assessment values for all pollutants emitted by the sources in this risk assessment, some HAP emitted by these source categories are lacking dose-response assessments. Accordingly, these pollutants cannot be included in the quantitative risk assessment, which could result in quantitative estimates understating HAP risk. To help to alleviate this potential underestimate, where we conclude similarity with a HAP for which a dose-response assessment value is available, we use that value as a surrogate for the assessment of the HAP for which no value is available. To the extent use of surrogates indicates appreciable risk, we may identify a need to increase priority for new IRIS assessment of that substance. We additionally note that, generally speaking, HAP of greatest concern due to environmental exposures and hazard are those for which dose-response assessments have been performed, reducing the likelihood of understating risk. Further, HAP not included in the quantitative assessment are assessed qualitatively and considered in the risk characterization that informs the risk management decisions, including with regard to consideration of HAP reductions achieved by various control options.

For a group of compounds that are unspeciated (e.g., glycol ethers), we conservatively use the most protective reference value of an individual compound in that group to estimate risk. Similarly, for an individual compound in a group (e.g., ethylene glycol diethyl ether) that does not have a specified reference value, we also apply the most protective reference value from the other compounds in the group to estimate risk.

e. Uncertainties in the Multipathway Screening Assessment

For each source category, we generally rely on site-specific levels of PB–HAP emissions to determine whether a refined assessment of the impacts from multipathway exposures is necessary. This determination is based on the results of a two-tiered

[20] IRIS glossary (*http://www.epa.gov/NCEA/iris/help_gloss.htm*).

[21] An exception to this is the URE for benzene, which is considered to cover a range of values, each end of which is considered to be equally plausible, and which is based on maximum likelihood estimates.

[22] According to the NRC report, *Science and Judgment in Risk Assessment* (NRC, 1994) ''[Default] options are generic approaches, based on general scientific knowledge and policy judgment, that are applied to various elements of the risk assessment process when the correct scientific model is unknown or uncertain.'' The 1983 NRC report, *Risk Assessment in the Federal Government: Managing the Process,* defined default option as ''the option chosen on the basis of risk assessment policy that appears to be the best choice in the absence of data to the contrary'' (NRC, 1983a, p. 63). Therefore, default options are not rules that bind the agency; rather, the agency may depart from them in evaluating the risks posed by a specific substance when it believes this to be appropriate. In keeping with the EPA's goal of protecting public health and the environment, default assumptions are used to ensure that risk to chemicals is not underestimated (although defaults are not intended to overtly overestimate risk). See EPA 2004, *An examination of EPA Risk Assessment Principles and Practices,* EPA/100/B–04/001 available at: *http://www.epa.gov/osa/pdfs/ratf-final.pdf.*

screening analysis that relies on the outputs from models that estimate environmental pollutant concentrations and human exposures for four PB–HAP. Two important types of uncertainty associated with the use of these models in RTR risk assessments and inherent to any assessment that relies on environmental modeling are model uncertainty and input uncertainty.[23]

Model uncertainty concerns whether the selected models are appropriate for the assessment being conducted and whether they adequately represent the actual processes that might occur for that situation. An example of model uncertainty is the question of whether the model adequately describes the movement of a pollutant through the soil. This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA Science Advisory Board reviews and other reviews, we are confident that the models used in the screen are appropriate and state-of-the-art for the multipathway risk assessments conducted in support of RTR.

Input uncertainty is concerned with how accurately the models have been configured and parameterized for the assessment at hand. For Tier I of the multipathway screen, we configured the models to avoid underestimating exposure and risk. This was accomplished by selecting upper-end values from nationally-representative data sets for the more influential parameters in the environmental model, including selection and spatial configuration of the area of interest, lake location and size, meteorology, surface water and soil characteristics and structure of the aquatic food web. We also assume an ingestion exposure scenario and values for human exposure factors that represent reasonable maximum exposures.

In Tier II of the multipathway assessment, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values and we identify the actual location of lakes near the facility rather than the default lake location that we apply in Tier I. By refining the screening approach in Tier II to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of the screen. The assumptions and the associated uncertainties regarding the selected ingestion exposure scenario are the same for Tier I and Tier II.

For both Tiers I and II of the multipathway assessment, our approach to addressing model input uncertainty is generally cautious. We choose model inputs from the upper end of the range of possible values for the influential parameters used in the models, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure. This approach reduces the likelihood of not identifying high risks for adverse impacts.

Despite the uncertainties, when individual pollutants or facilities do screen out, we are confident that the potential for adverse multipathway impacts on human health is very low. On the other hand, when individual pollutants or facilities do not screen out, it does not mean that multipathway impacts are significant, only that we cannot rule out that possibility and that a refined multipathway analysis for the site might be necessary to obtain a more accurate risk characterization for the source category.

For further information on uncertainties and the Tier I and II screening methods, refer to the risk document Appendix 4, ''Technical Support Document for TRIM-Based Multipathway Tiered Screening Methodology for RTR.''

f. Uncertainties in the Environmental Risk Screening Assessment

For each source category, we generally rely on site-specific levels of environmental HAP emissions to perform an environmental screening assessment. The environmental screening assessment is based on the outputs from models that estimate environmental HAP concentrations. The same models, specifically the TRIM.FaTE multipathway model and the AERMOD air dispersion model, are used to estimate environmental HAP concentrations for both the human multipathway screening analysis and for the environmental screening analysis. Therefore, both screening assessments have similar modeling uncertainties.

Two important types of uncertainty associated with the use of these models in RTR environmental screening assessments—and inherent to any assessment that relies on environmental modeling—are model uncertainty and input uncertainty.[24]

Model uncertainty concerns whether the selected models are appropriate for the assessment being conducted and whether they adequately represent the movement and accumulation of environmental HAP emissions in the environment. For example, does the model adequately describe the movement of a pollutant through the soil? This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA Science Advisory Board reviews and other reviews, we are confident that the models used in the screen are appropriate and state-of-the-art for the environmental risk assessments conducted in support of our RTR analyses.

Input uncertainty is concerned with how accurately the models have been configured and parameterized for the assessment at hand. For Tier I of the environmental screen for PB–HAP, we configured the models to avoid underestimating exposure and risk to reduce the likelihood that the results indicate the risks are lower than they actually are. This was accomplished by selecting upper-end values from nationally-representative data sets for the more influential parameters in the environmental model, including selection and spatial configuration of the area of interest, the location and size of any bodies of water, meteorology, surface water and soil characteristics and structure of the aquatic food web. In Tier I, we used the maximum facility-specific emissions for the PB–HAP (other than lead, which was evaluated by comparison to the secondary lead NAAQS) that were included in the environmental screening assessment and each of the media when comparing to ecological benchmarks. This is consistent with the conservative design of Tier I of the screen. In Tier II of the environmental screening analysis for PB–HAP, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values, and we identify the locations of water bodies near the facility location. By refining the screening approach in Tier II to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of the screen. To better represent widespread impacts, the modeled soil concentrations are averaged in Tier II to

[23] In the context of this discussion, the term ''uncertainty'' as it pertains to exposure and risk encompasses both variability in the range of expected inputs and screening results due to existing spatial, temporal, and other factors, as well as uncertainty in being able to accurately estimate the true result.

[24] In the context of this discussion, the term ''uncertainty,'' as it pertains to exposure and risk assessment, encompasses both *variability* in the range of expected inputs and screening results due to existing spatial, temporal, and other factors, as well as *uncertainty* in being able to accurately estimate the true result.

obtain one average soil concentration value for each facility and for each PB–HAP. For PB–HAP concentrations in water, sediment and fish tissue, the highest value for each facility for each pollutant is used.

For the environmental screening assessment for acid gases, we employ a single-tiered approach. We use the modeled air concentrations and compare those with ecological benchmarks.

For both Tiers I and II of the environmental screening assessment, our approach to addressing model input uncertainty is generally cautious. We choose model inputs from the upper end of the range of possible values for the influential parameters used in the models, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure. This approach reduces the likelihood of not identifying potential risks for adverse environmental impacts.

Uncertainty also exists in the ecological benchmarks for the environmental risk screening analysis. We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint. In general, EPA benchmarks used at a programmatic level (e.g., Office of Water, Superfund Program) were used if available. If not, we used EPA benchmarks used in regional programs (e.g., Superfund). If benchmarks were not available at a programmatic or regional level, we used benchmarks developed by other agencies (e.g., NOAA) or by state agencies.

In all cases (except for lead, which was evaluated through a comparison to the NAAQS), we searched for benchmarks at the following three effect levels, as described in Section III.A.6 of this preamble:

1. A no-effect level (i.e., NOAEL).
2. Threshold-effect level (i.e., LOAEL).
3. Probable effect level (i.e., PEL).

For some ecological assessment endpoint/environmental HAP combinations, we could identify benchmarks for all three effect levels, but for most, we could not. In one case, where different agencies derived significantly different numbers to represent a threshold for effect, we included both. In several cases, only a single benchmark was available. In cases where multiple effect levels were available for a particular PB–HAP and assessment endpoint, we used all of the available effect levels to help us to determine whether risk exists and if the risks could be considered significant and widespread.

The EPA evaluated the following seven HAP in the environmental risk screening assessment: Cadmium, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury), lead compounds, HCl and HF. These seven HAP represent pollutants that can cause adverse impacts for plants and animals either through direct exposure to HAP in the air or through exposure to HAP that is deposited from the air onto soils and surface waters. These seven HAP also represent those HAP for which we can conduct a meaningful environmental risk screening assessment. For other HAP not included in our screening assessment, we may not have appropriate multipathway models that allow us to predict the concentration of that pollutant. The EPA acknowledges that other HAP beyond the seven HAP that we are evaluating may have the potential to cause adverse environmental effects and, therefore, the EPA may evaluate other relevant HAP in the future, as modeling science and resources allow.

Further information on uncertainties and the Tier I and II environmental screening methods is provided in Appendix 5 of the document ''Technical Support Document for TRIM-Based Multipathway Tiered Screening Methodology for RTR: Summary of Approach and Evaluation.'' Also, see the *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category, Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category,* and *Draft Residual Risk Assessment for the Polycarbonate Production Source Category,* available in the docket for this action.

B. How did we consider the risk results in making decisions for this proposal?

As discussed in section II.A of this preamble, in evaluating and developing standards under section 112(f)(2), we apply a two-step process to address residual risk. In the first step, the EPA determines whether risks are acceptable. This determination ''considers all health information, including risk estimation uncertainty, and includes a presumptive level on maximum individual lifetime [cancer] risk (MIR) [25] of approximately [1-in-10 thousand] [i.e., 100-in-1 million].'' 54 FR 38045. If risks are unacceptable, the EPA must determine the emissions standards necessary to bring risks to an acceptable level without considering costs. In the second step of the process, the EPA considers whether the emissions standards provide an ample margin of safety ''in consideration of all health information, including the number of persons at risk levels higher than approximately 1-in-1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision.'' *Id.* The EPA must promulgate tighter emission standards if necessary to provide an ample margin of safety.

In past residual risk actions, the EPA considered a number of human health risk metrics associated with emissions from the categories under review, including the MIR, the number of persons in various risk ranges, cancer incidence, the maximum non-cancer HI and the maximum acute non-cancer hazard. See, e.g., 72 FR 25138, May 3, 2007; 71 FR 42724, July 27, 2006. The EPA considered this health information for both actual and allowable emissions. See, e.g., 75 FR 65068, October 21, 2010; 75 FR 80220, December 21, 2010; 76 FR 29032, May 19, 2011. The EPA also discussed risk estimation uncertainties and considered the uncertainties in the determination of acceptable risk and ample margin of safety in these past actions. The EPA considered this same type of information in support of this **Federal Register** proposed rule.

The agency is considering these various measures of health information to inform our determinations of risk acceptability and ample margin of safety under CAA section 112(f). As explained in the Benzene NESHAP, ''the first step judgment on acceptability cannot be reduced to any single factor'' and thus ''[t]he Administrator believes that the acceptability of risk under [previous] section 112 is best judged on the basis of a broad set of health risk measures and information.'' 54 FR 38046. Similarly, with regard to the ample margin of safety determination, ''the Agency again considers all of the health risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors.'' *Id.*

The Benzene NESHAP approach provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. In responding to comment on our policy under the Benzene NESHAP, the EPA explained that:

[25] Although defined as ''maximum individual risk,'' MIR refers only to cancer risk. MIR, one metric for assessing cancer risk, is the estimated risk were an individual exposed to the maximum level of a pollutant for a lifetime.

''[t]he policy chosen by the Administrator permits consideration of multiple measures of health risk. Not only can the MIR figure be considered, but also incidence, the presence of non-cancer health effects, and the uncertainties of the risk estimates. In this way, the effect on the most exposed individuals can be reviewed as well as the impact on the general public. These factors can then be weighed in each individual case. This approach complies with the Vinyl Chloride mandate that the Administrator ascertain an acceptable level of risk to the public by employing [her] expertise to assess available data. It also complies with the Congressional intent behind the CAA, which did not exclude the use of any particular measure of public health risk from the EPA's consideration with respect to CAA section 112 regulations, and thereby implicitly permits consideration of any and all measures of health risk which the Administrator, in [her] judgment, believes are appropriate to determining what will 'protect the public health'.''

54 FR 38057. Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risks. The Benzene NESHAP explained that ''an MIR of approximately one in 10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors.'' *Id.* at 38045. Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: ''EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category.'' *Id.* at 38061. We also consider the uncertainties associated with the various risk analyses, as discussed earlier in this preamble, in our determinations of acceptability and ample margin of safety.

The EPA notes that it has not considered certain health information to date in making residual risk determinations. At this time, we do not attempt to quantify those HAP risks that may be associated with emissions from other facilities that do not include the source categories in question, mobile source emissions, natural source emissions, persistent environmental pollution or atmospheric transformation in the vicinity of the sources in these categories.

The agency understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing non-cancer risks, where pollutant-specific exposure health reference levels (e.g., RfCs) are based on the assumption that thresholds exist for adverse health effects. For example, the agency recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse non-cancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (e.g., other facilities) to which an individual is exposed may be sufficient to result in increased risk of adverse non-cancer health effects. In May 2010, the SAB advised the EPA ''that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background concentrations and contributions from other sources in the area.'' [26]

In response to the SAB recommendations, the EPA is incorporating cumulative risk analyses into its RTR risk assessments, including those reflected in today's proposal. The agency is: (1) Conducting facility-wide assessments, which include source category emission points as well as other emission points within the facilities; (2) considering overlapping sources in the same category; and (3) for some persistent and bioaccumulative pollutants, analyzing the ingestion route of exposure. In addition, the RTR risk assessments have always considered aggregate cancer risk from all carcinogens and aggregate non-cancer hazard indices from all non-carcinogens affecting the same target organ system.

Although we are interested in placing source category and facility-wide HAP risks in the context of *total* HAP risks from all sources combined in the vicinity of each source, we are concerned about the uncertainties of doing so. Because of the contribution to total HAP risk from emissions sources other than those that we have studied in depth during this RTR review, such estimates of total HAP risks would have significantly greater associated uncertainties than the source category or facility-wide estimates. Such aggregate or cumulative assessments would compound those uncertainties, making the assessments too unreliable.

[26] EPA's responses to this and all other key recommendations of the SAB's advisory on RTR risk assessment methodologies (which is available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf*) are outlined in a memo to this rulemaking docket from David Guinnup entitled, *EPA's Actions in Response to the Key Recommendations of the SAB Review of RTR Risk Assessment Methodologies.*

C. How did we perform the technology review?

Our technology review focused on the identification and evaluation of developments in practices, processes and control technologies that have occurred since the MACT standards were promulgated. Where we identified such developments, in order to inform our decision of whether it is ''necessary'' to revise the emissions standards, we analyzed the technical feasibility of applying these developments, and the estimated costs, energy implications, non-air environmental impacts, as well as considering the emissions reductions. We also considered the appropriateness of applying controls to new sources versus retrofitting existing sources.

Based on our analyses of the available data and information, we identified potential developments in practices, processes and control technologies. For this exercise, we considered any of the following to be a ''development'':

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards.
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction.
- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards.
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards.
- Any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

We reviewed a variety of data sources in our investigation of potential practices, processes or controls to consider. Among the sources we

reviewed were the NESHAP for various industries that were promulgated since the MACT standards being reviewed in this action. We reviewed the regulatory requirements and/or technical analyses associated with these regulatory actions to identify any practices, processes and control technologies considered in these efforts that could be applied to emissions sources in the AMF, APR and PC source categories, as well as the costs, non-air impacts and energy implications associated with the use of these technologies.

We also consulted the EPA's RACT/BACT/LAER Clearinghouse (RBLC), which is a central database of air pollution control technology information that was established by the EPA to promote the sharing of information among permitting agencies and to aid in identifying future possible control technology options that might apply broadly to numerous sources within a category or apply only on a source-by-source basis.

Finally, we reviewed information from other sources, such as state and/or local permitting agency databases and industry-supported databases.

IV. Analytical Results and Proposed Decisions for the AMF Source Category

A. What actions are we taking pursuant to CAA sections 112(d)(2) and 112(d)(3)?

We identified the absence of an emissions limit for a potentially significant emission source within the provisions of the AMF MACT standards. Specifically, there are no emissions standards or other requirements for spinning lines that use a spin dope produced from a solution polymerization process at existing facilities.[27] As this process is a significant source of emissions for the one facility in the source category, we are proposing to set standards for this process under CAA section 112(d)(2) and (3) in this action.

Since there is only one facility in the source category, the current emissions level of the spinning line at this affected source at this facility represents the MACT floor. As part of our beyond-the-floor analysis, we considered control options for the spinning line more stringent than the MACT floor. We identified two beyond-the-floor options: (1) A scrubber operating at 85 percent control efficiency; and (2) a regenerative thermal oxidizer operating at 95 percent control efficiency. Based on the emission stream flow rate and emissions information provided by the one facility in this source category, the capital costs of the scrubber option are estimated to be approximately $2.6 million, and the total annualized costs are estimated to be approximately $622,000. The capital costs of the thermal oxidizer option are estimated to be approximately $3.4 million and the total annualized costs are estimated to be approximately $1.5 million.

The estimated HAP emissions reduction from the scrubber option is approximately 27 tpy. The cost effectiveness for the scrubber option is approximately $23,000/ton. The estimated HAP emissions reduction from the thermal oxidizer option is approximately 30 tpy. The cost effectiveness for the thermal oxidizer option is approximately $50,000/ton. The incremental cost effectiveness between the 85 percent control option and the 95 percent control option is approximately $280,000/ton of HAP emission reduction. Table 3 summarizes the cost and emission reduction impacts of the proposed options.

For further details on the assumptions and methodologies used in this analysis, see the technical memorandum titled *MACT Floor and Beyond-the-Floor Analyses for Unregulated Emission Sources in the Acrylic and Modacrylic Fibers and Amino and Phenolic Resins Production Source Categories,* available in the docket for this action.

As discussed in section IV.C below, neither of these options are needed in order to support the EPA's finding under CAA section 112(f) that the AMF MACT standards already protect public health with an ample margin of safety. While we do not factor quantified risk reductions into CAA section 112(d)(2) beyond-the-floor analyses, for informational purposes we note that the scrubber option would reduce the MIR for the source category from 20 to 3 and reduce the maximum chronic non-cancer TOSHI from 0.1 to 0.02. The thermal oxidizer option would reduce the MIR for the source category from 20 to 1 and reduce the maximum chronic non-cancer TOSHI from 0.1 to 0.01.

TABLE 3—AMF SOLUTION POLYMERIZATION SPINNING LINE OPTIONS IMPACTS

Regulatory alternatives	HAP emissions reduction (tpy)	Capital cost ($ million)	Annual cost ($ million/yr)	Cost effectiveness ($/ton HAP removed)	Incremental cost effectiveness ($/ton HAP removed)
1 Baseline (MACT floor)	0	0	0	.....	.....
2 Scrubber (Beyond-the-floor)	27	2.6	0.6	23,000	23,000
3 Thermal Oxidizer (Beyond-the-floor)	30	3.4	1.5	50,000	280,000

We believe that the costs of these beyond-the-floor options are not reasonable, given the level of HAP emission reduction they would achieve. Therefore, we are proposing an emission standard that reflects the MACT floor. We determined the MACT floor using the emissions and production data provided by the facility and calculated production-based emission rates for several years of production. Taking into account expected variability in the production-based emission rates, we calculated the MACT floor emission rate to be 20 kg organic HAP/Mg (40 lb organic HAP/ton) of acrylic and modacrylic fiber produced.

B. What are the results of the risk assessment and analyses?

1. Inhalation Risk Assessment Results

Table 4 provides an overall summary of the inhalation risk assessment results for the AMF source category.

[27] Note that these uncontrolled emissions were included in the risk assessment for the AMF source category.

TABLE 4—AMF INHALATION RISK ASSESSMENT RESULTS

Number of facilities [1]	Maximum individual cancer risk (in 1 million) [2]		Population at risk ≥ 1-in-1 million	Annual cancer incidence (cases per year)	Maximum chronic non-cancer TOSHI [3]		Maximum off-site acute non-cancer HQ [4]
	Actual emissions level	Allowable emissions level			Actual emissions level	Allowable emissions level	
1	20	20	81,000	0.006	0.1	0.1	HQ_{AEGL-1} = 0.08 acrylonitrile.

[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the AMF source category is the respiratory system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which in most cases is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute dose-response value. See section III.A.3 of this preamble for explanation of acute dose-response values.

The inhalation risk modeling was performed using actual emissions level data. As shown in Table 4, the results of the inhalation risk assessment indicated the maximum lifetime individual cancer risk could be up to 20-in-1 million, the estimated maximum chronic non-cancer TOSHI value is 0.1 and the estimated maximum off-facility site acute HQ value is 0.08, based on the actual emissions level and the AEGL–1 value for acrylonitrile. The total estimated national cancer incidence from this facility based on actual emission levels is 0.006 excess cancer cases per year or one case in every 170 years.

Based on our analysis, we estimate that actual emissions approximate emissions allowable under the MACT standards, as we are not aware of any situations in which the facility is conducting additional work practices or operating a control device such that it achieves a greater emission reduction than required. Therefore, the risk results for MACT-allowable emissions are approximately equal to those for actual emissions. For more detail about this estimate of the ratio of actual to MACT-allowable emissions and the estimation of MACT-allowable emission levels (and associated risks and impacts), see the memorandum, *MACT Allowable Emissions and Risks for the Acrylic and Modacrylic Fibers, Amino/Phenolic Resins, and Polycarbonate Production Source Categories,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

2. Acute Risk Results

We estimate that the maximum off-facility site acute HQ value is 0.08, based on the actual emissions level and the AEGL–1 value for acrylonitrile.

3. Multipathway Risk Screening Results

There were no reported emissions of PB–HAP, indicating low potential for human health multipathway risks as a result of PB–HAP emissions from this source category.

4. Environmental Risk Screening Results

The emissions data for the AMF source category indicate that sources within this source category do not emit any of the seven pollutants that we identified as ''environmental HAP,'' as discussed earlier in this preamble. Based on the processes and materials used in the source category, we do not expect any of the seven environmental HAP to be emitted. Also, we are unaware of any adverse environmental effect caused by emissions of HAP that are emitted by this source category. Therefore, we do not expect an adverse environmental effect as a result of HAP emissions from this source category.

5. Facility-Wide Risk Results

Table 5 presents the results of the facility-wide risk assessment for the AMF source category. This assessment was conducted based on actual emission levels. For detailed facility-specific results, see Appendix 4 of the *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category* in the docket for this action.

TABLE 5—AMF FACILITY-WIDE RISK ASSESSMENT RESULTS

Number of facilities analyzed	1
Cancer Risk	
Estimated maximum facility-wide individual cancer risk (in 1 million)	20
Number of facilities with estimated facility-wide individual cancer risk of 100-in-1 million or more	0
Number of facilities at which the AMF source category contributes 50 percent or more to the facility-wide individual cancer risks of 100-in-1 million or more	0
Number of facilities at which the AMF source category contributes 50 percent or more to the facility-wide individual cancer risk of 1-in-1 million or more	1
Chronic Non-cancer Risk	
Maximum facility-wide chronic non-cancer TOSHI	0.1
Number of facilities with facility-wide maximum non-cancer TOSHI greater than 1	0
Number of facilities at which the AMF source category contributes 50 percent or more to the facility-wide maximum non-cancer TOSHI of 1 or more	0

The facility-wide MIR from all HAP emissions at the single AMF facility is estimated to be 20-in-1 million, based on actual emissions. The facility-wide maximum individual chronic non-cancer TOSHI is estimated to be 0.1 based on actual emissions.

6. What demographic groups might benefit from this regulation?

To examine the potential for any environmental justice (EJ) issues that might be associated with the source category, we performed a demographic analysis of the population close to the facility. In this analysis, we evaluated the distribution of HAP-related cancer and non-cancer risks from the AMF source category across different social, demographic and economic groups within the populations living near facilities identified as having the highest risks. The methodology and the results of the demographic analyses are included in a technical report, *Environmental Justice Review: Amino/Phenolic Resins, Acrylic and Modacrylic Fibers Production, and Polycarbonate Production,* available in the docket for this action.

The results of the demographic analysis are summarized in Table 6 below. These results, for various demographic groups, are based on the estimated risks from actual emissions levels for the population living within 50 km of the facilities.

TABLE 6—AMF DEMOGRAPHIC RISK ANALYSIS RESULTS

	Nationwide	Population with Cancer risk at or above 1-in-1 million	Population with chronic hazard index above 1
Total Population	312,861,256	81,000	0
Race by Percent			
White	72	63	0
All Other Races	28	37	0
Race by Percent			
White	72	63	0
African American	13	30	0
Native American	1	0.4	0
Other and Multiracial	14	7	0
Ethnicity by Percent			
Hispanic	17	6	0
Non-Hispanic	83	94	0
Income by Percent			
Below Poverty Level	14	14	0
Above Poverty Level	86	86	0
Education by Percent			
Over 25 and without High School Diploma	10	17	0
Over 25 and with a High School Diploma	90	83	0

The results of the AMF source category demographic analysis indicate that emissions from the source category expose approximately 81,000 people to a cancer risk at or above 1-in-1 million and approximately 0 people to a chronic non-cancer TOSHI greater than 1. The demographic results for the population potentially impacted by AMF emissions indicate that the minority and African American percentages are higher than the national percentages for these categories (37 percent minority compared to 28 percent nationwide, and 30 percent African American compared to 13 percent nationwide). Furthermore, the demographic results for the population potentially impacted by these source category emissions indicate that the percentage of people over 25 and without a high school diploma is also slightly higher than the nationwide percentage (17 percent compared to 15 percent nationwide). The other demographic percentages for the people exposed to a risk greater than or equal to 1-in-1 million as a result of AMF emissions are essentially the same or lower than the respective nationwide percentages.

Implementation of the provisions included in this proposal are not expected to reduce the number of people estimated to have a cancer risk greater than 1-in-1 million due to HAP emissions from these sources (81,000 people). This is because the proposed emission rate for spinning lines that use spin dope produced from a solution polymerization process is equal to the MACT floor for the one facility in the AMF source category, which will not result in any quantifiable emission reductions.

C. What are our proposed decisions regarding risk acceptability, ample margin of safety and adverse environmental effects?

1. Risk Acceptability

As noted in section III.B of this preamble, we weigh all health risk factors in our risk acceptability determination, including the MIR; the number of persons in various risk ranges; cancer incidence; the maximum non-cancer HI; the maximum acute non-cancer HQ; the extent of non-cancer risks; the potential for adverse environmental effects; distribution of risks in the exposed population; and risk estimation uncertainty (54 FR 38044, September 14, 1989). For the AMF source category, the risk analysis we performed indicates that the cancer risks to the individual most exposed could be up to 20-in-1 million due to

both actual and allowable emissions. This value is considerably less than 100-in-1 million, which is the presumptive level of acceptability. The risk analysis also shows low cancer incidence (1 in every 170 years), low potential for human health multipathway effects because no PB–HAP are emitted from this source category, and that chronic non-cancer health impacts are unlikely.

We estimate that the worst-case acute HQ value is 0.08 for acrylonitrile, based on an AEGL–1. As described earlier in this preamble, the acute assessment includes some conservative assumptions and some uncertainties. Considering the improbable assumption that worst-case meteorological conditions are present at the same time that maximum hourly emissions of acrylonitrile exceed the average hourly emission rate by a factor of 10 at most emission points simultaneously, coincident with individuals being in the location of maximum impact, and considering the low acute HQ values based on the AEGL–1 dose-response value, we believe that it is unlikely that HAP emissions from this source category would result in adverse acute health effects. Further discussion on these assumptions can be found in the *Draft Residual Risk Assessment for the Acrylic and Modacrylic Fibers Production Source Category,* which is available in the docket for this action.

Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 20-in-1 million and that the maximum chronic non-cancer TOSHI is estimated to be 0.1.

The EPA has weighed the various health risk measures and health factors, including risk estimation uncertainty, discussed above and in section III.A.8 of this preamble, and we are proposing that the risks from the AMF source category are acceptable.

2. Ample Margin of Safety Analysis

Although we are proposing to determine that the risks from the AMF source category are acceptable, risk estimates for 81,000 individuals in the exposed population are above 1-in-1 million. Consequently, we considered whether the AMF MACT standards provide an ample margin of safety to protect public health. In this analysis, we investigated available emissions control options that might reduce the risk associated with emissions from the source category and considered this information along with all of the health risks and other health information considered in the risk acceptability determination.

For the AMF source category, we did not identify any further control options for storage vessels, process vents, spinning lines or wastewater beyond what is currently required in the rule or is being proposed in this action (see section IV.A of this preamble for our proposed actions related to spinning lines that use a spin dope produced from a polymerization process). For equipment leaks, as discussed in section IV.D of this preamble, we identified an emission control option of requiring compliance with subpart UU rather than subpart TT, and either including or not including the connector LDAR requirements of subpart UU. We estimate that less than 1 percent of the emissions and associated risk at the MACT-allowable levels could be attributed to equipment leaks. We estimate the HAP reduction resulting from compliance with subpart UU without the subpart UU connector monitoring requirements would be 0.2 tpy from the baseline MACT-allowable emissions level, with a cost effectiveness of $1,500/ton HAP reduction. We estimate the HAP reduction resulting from compliance with subpart UU including the subpart UU connector monitoring requirements would be 0.5 tpy from the baseline MACT-allowable emissions level, with a cost effectiveness of $14,000/ton HAP reduction. Neither of these additional control options for equipment leaks would achieve a reduction in the maximum individual cancer risks or any of the other health risk metrics. Due to the minimal reductions in HAP emissions and risk, along with the costs associated with these options, we are proposing that additional HAP emissions controls for AMF production equipment leaks are not necessary to provide an ample margin of safety to protect public health.

In accordance with the approach established in the Benzene NESHAP, the EPA weighed all health risk measures and information considered in the risk acceptability determination, along with additional factors relating to the appropriate level of control, including the costs and economic impacts of emissions controls, technological feasibility, uncertainties and other relevant factors in making our ample margin of safety determination. Considering all of these factors, the EPA is proposing to determine that the current MACT standards in 40 CFR part 63, subpart YY for the AMF source category provide an ample margin of safety to protect public health.

3. Adverse Environmental Effects

We did not identify emissions of the seven environmental HAP included in our environmental risk screening, and are unaware of any adverse environmental effects caused by other HAP emitted by this source category. Therefore, we do not expect there to be an adverse environmental effect as a result of HAP emissions from this source category. Accordingly, we are proposing to determine that it is not necessary to set a more stringent standard to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

D. What are the results and proposed decisions based on our technology review?

In the period of time since the AMF MACT standards were promulgated, the EPA has developed air toxics regulations for numerous source categories that emit organic HAP from the same type of emissions sources that are present in the AMF source category. We reviewed the regulatory requirements and technical analyses for these regulations for new practices, processes and control techniques. We also conducted a search of the BACT/RACT/LAER clearinghouse for controls for VOC- and HAP-emitting processes in the Polymers and Resins and the Synthetic Organic Chemical Manufacturing Industry (SOCMI) categories with permits dating back to 1997.

The AMF MACT standards currently require compliance with either subpart TT or subpart UU of 40 CFR part 63 to control emissions from equipment leaks. While many provisions of these two rules are the same or similar, subpart UU requires the use of a lower leak definition for valves in gas and vapor service and in light liquid service, pumps in light liquid service, and connectors in gas and vapor service and in light liquid service. Specifically, subpart UU lowers the leak definition for valves from 10,000 ppm (in subpart TT) to 500 ppm, lowers the leak definition for pump seals from 10,000 ppm (in subpart TT) to 1,000 ppm, and requires instrument monitoring of connectors with a leak definition of 500 ppm, as opposed to sensory monitoring (in subpart TT). We identified the more stringent leak definitions of subpart UU as a development in practices, processes or control technologies for LDAR programs. We also note that the one facility in this source category is complying with subpart TT.

Since the one facility in this source category is currently complying with subpart TT, we analyzed the costs and emission reductions associated with switching from a subpart TT LDAR program to a subpart UU LDAR program, both including and not including the subpart UU connector monitoring requirements, which can be an expensive component of an LDAR program. The estimated costs and emissions reductions associated with these options are shown in Table 7. For Option 1 (subpart UU without connector monitoring), we estimated the capital costs to be approximately $1,400, and the total annualized costs are estimated to be approximately $220. The estimated HAP emissions reduction is approximately 0.2 tpy, and the cost effectiveness is approximately $1,500/ton. For Option 2 (subpart UU with connector monitoring), we estimated the capital costs to be approximately $19,000, and the total annualized costs are estimated to be approximately $7,600. The estimated HAP emissions reduction is approximately 0.5 tpy, and the cost effectiveness is approximately $14,000/ton. The incremental cost effectiveness between Option 1 and Option 2 is approximately $19,000.

While, as discussed in section IV.C above, the equipment leaks control options are not needed to support the EPA's finding under CAA section 112(f) that the AMF MACT standards already protect public health with an ample margin of safety, and while we do not factor quantified risk reductions into CAA section 112(d)(6) technology review analyses, for informational purposes we note that neither Option 1 nor Option 2 of the technology review for equipment leaks would reduce the MIR or the maximum chronic non-cancer TOSHI for the source category.

TABLE 7—AMF EQUIPMENT LEAK OPTIONS IMPACTS

Regulatory alternatives	HAP emissions reduction (tpy)	Capital cost ($)	Annual cost ($/yr)	Cost effectiveness ($/ton HAP removed)	Incremental cost effectiveness ($/ton HAP removed)
Option 1: Subpart UU, no connector monitoring	0.2	1,400	220	1,500	
Option 2: Subpart UU with connector monitoring	0.5	19,000	7,600	14,000	19,000

Based on this analysis, we believe the costs of Option 1 are reasonable, given the level of HAP emissions reduction that would be achieved with this control option. We believe the costs of Option 2 are not reasonable, given the level of HAP emission reduction that control option would achieve. Therefore, we are proposing to revise the AMF MACT standards to require facilities to comply with subpart UU rather than subpart TT, with the exception of connectors in gas and vapor service and in light liquid service. We are proposing to retain the option to comply with either subpart TT or subpart UU for these components.

For storage vessels, process vents, spinning line fugitive emissions and wastewater, beyond what is currently required in the rule or is being proposed in this action, we did not identify: any add-on control technology or other equipment that was not identified and considered during MACT development; any improvements in add-on control technology or other equipment (that was identified and considered during MACT development) that could result in significant additional HAP emission reduction; any work practice or operational procedure that was not identified and considered during MACT development; any process change or pollution prevention alternative that could be broadly applied that was not identified and considered during MACT development; or any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during MACT development).

For more detailed information on the results of the EPA's technology review, see the memorandum, *Developments in Practices, Processes, and Control Technologies for the Acrylic and Modacrylic Fibers Source Category,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

V. Analytical Results and Proposed Decisions for the APR Source Category

A. What actions are we taking pursuant to CAA sections 112(d)(2) and 112(d)(3)?

We identified the absence of a limit for two potentially significant emission sources within the provisions of the APR MACT standards. These two emissions sources are storage vessels and continuous process vents at existing facilities.

1. Storage Vessels

Currently, storage vessels at existing facilities in the APR source category are unregulated by the APR MACT standards. Under CAA section 112(d)(2) and (3), we are proposing that the MACT floor level of control is to either maintain and operate a storage vessel with an internal or an external floating roof, or use a fixed roof tank with emissions vented through a closed vent system to any combination of control devices that achieve a 95-percent emissions reduction or reduce emissions to specified control device outlet concentrations. These requirements would apply to storage vessels having a capacity of 50,000 gallons or greater and a vapor pressure of 2.45 psia or greater, or a capacity of 90,000 gallons or greater and a vapor pressure of 0.15 psia or greater. We determined that this level of control represents the MACT floor using available data from the original development of the APR MACT standards, as well as from title V permits for facilities in the source category.

As part of our beyond-the-floor analysis, we considered control options more stringent than the MACT floor. We identified two beyond-the-floor options. For Option 1, we evaluated revising the applicability of the MACT floor to include smaller capacity storage vessels and/or storage vessels containing liquids with lower vapor pressures, such that these additional storage vessels would be subject to the MACT floor control requirements for storage vessels. We evaluated the impacts of changing these thresholds to be consistent with other storage vessel standards already required for the chemical industry regulated by the HON. Specifically, as shown in Table 8, under this option, we evaluated requiring the MACT floor level of emissions control for storage vessels of capacities greater than or equal to 20,000 gal, but less than 40,000 gal if the MTVP is 1.9 psia or greater, and for storage vessels of capacities greater than or equal to 40,000 gal, but less than 90,000 gal if the MTVP is 0.75 psia or

greater. Control would also be required for storage vessels of 90,000 gal or greater, if the MTVP is 0.15 psia or greater, as required under the MACT floor, but which is not a requirement of the HON. Since available data for this source category indicates most APR storage vessels have fixed-roofs, under Option 2, we considered the impacts of requiring a 98-percent emissions reduction for storage vessels meeting the capacity and vapor pressure thresholds under Option 1, assuming emissions would be vented through a closed vent system to a regenerative thermal oxidizer (RTO) to attain this increased level of control.

Table 9 presents the impacts for the MACT floor and the two beyond-the-floor options considered. Our analysis indicates that all existing storage vessels exceeding the MACT floor capacity and vapor pressure thresholds are already controlled at the 95-percent level; therefore, we expect no costs of additional emissions reductions associated with the MACT floor level of control. Available data also indicates that there may be no existing storage vessels meeting the size and vapor pressure thresholds of Option 1 that are not already controlled at the 95-percent level. In this case, we would expect no costs or additional emissions reductions associated with Option 1. However, in order to show the maximum potential impacts from this option, we used an analysis of an APR model plant, which assumes that one tank is already meeting the control requirements of the MACT floor and that one additional tank would require control under Option 1. In this analysis, we assumed that the additional tank would be controlled with the same control device as the controlled tank but would require ductwork to route emissions there. Since our data indicates that six facilities report emissions from storage vessels, we assumed that just these six facilities would be impacted by Option 1. As seen in Table 9 of this preamble, for Option 1, we estimated the nationwide capital costs to be approximately $67,000, and the total nationwide annualized costs are estimated to be approximately $15,000. The estimated HAP emissions reduction is approximately 6.3 tpy. For Option 2, we estimated the nationwide capital costs to be approximately $5.2 million and the nationwide total annualized costs are estimated to be approximately $1.6 million. The estimated nationwide HAP emissions reduction is approximately 7.0 tpy, and the incremental cost effectiveness between Option 1 and Option 2 is approximately $2.3 million/ton. We solicit comment on the sizes of storage vessels and the vapor pressures of the contents of these storage vessels at APR facilities.

For further details on the assumptions and methodologies used in this analysis, see the technical memorandum titled *MACT Floor and Beyond-the-Floor Analyses for Unregulated Emission Sources in the Acrylic and Modacrylic Fibers and Amino and Phenolic Resins Production Source Categories,* available in the docket for this action.

While, as discussed in section V.B below, the storage vessel control options are not needed to support the EPA's finding under CAA section 112(f) that the APR MACT standards already protect public health with an ample margin of safety, and while we do not factor quantified risk reductions into CAA section 112(d)(2) beyond-the-floor analyses, for informational purposes we note that neither Option 1 nor Option 2 for storage vessels would reduce the MIR for the source category because the MIR is not caused by emissions from storage vessels. However, the maximum non-cancer TOSHI is due to emissions from storage vessels. Assuming the storage vessel emissions contributing to this TOSHI are from an uncontrolled storage vessel, under both Options 1 and 2, the TOSHI would be reduced to less than the risk caused by other emission point types. The maximum TOSHI at the MACT-allowable level would be reduced from 0.7 to 0.07 with either storage vessel control option.

TABLE 8—STORAGE TANK SIZE AND VAPOR PRESSURE THRESHOLDS CONSIDERED UNDER THE MACT FLOOR AND BEYOND-THE-FLOOR ANALYSES

Regulatory alternatives	Size and vapor pressure thresholds for control	
	Size (gallons)	Vapor pressure (psia)
MACT Floor	50,000 ≤ capacity	≥2.45
	90,000 ≤ capacity	≥0.15
Options 1 and 2	20,000 ≤ capacity < 40,000	≥1.9
	40,000 ≤ capacity < 90,000	≥0.75
	90,000 ≤ capacity	≥0.15

TABLE 9—NATIONWIDE EMISSIONS REDUCTION AND COST IMPACTS OF CONTROL OPTIONS FOR STORAGE VESSELS AT EXISTING APR FACILITIES

Regulatory alternatives	HAP emissions reduction (tpy)	Capital cost ($)	Annual cost ($/yr)	Cost effectiveness ($/ton HAP removed)	Incremental cost effectiveness ($/ton HAP removed)
Baseline (MACT floor)	0	0	0	.....	.....
Option 1 (Beyond-the-floor)[1]	6.3	67,000	15,000	2,400	2,400
Option 2 (Beyond-the-floor)	7.0	5,200,000	1,600,000	230,000	2,200,000

[1] The potential costs and emissions reductions of Option 1 regulatory alternatives are presented here based on a model facility with a single additional storage tank above the thresholds at which control would be required. However, available data indicate that there may be no existing facilities with uncontrolled tanks above the thresholds at which control would be required. In this case, there would be no costs or emissions reductions associated with these regulatory alternatives.

Based on this analysis, we believe that the costs of Option 1 are reasonable, given the level of HAP emissions reduction this option would achieve. We believe that the costs of Option 2 are not reasonable, given the level of HAP

emissions reduction this option would achieve. Therefore, we are proposing to revise the APR MACT standards to require the MACT floor level of control for storage vessels at existing affected sources with the specified capacities and vapor pressures for Option 1.

2. Continuous Process Vents

The EPA has identified the presence of uncontrolled continuous process vents at the two facilities in the APR source category (Georgia Pacific in Crossett, AR, and BTL Specialty Resins in Toledo, OH). Under CAA section 112(d)(2) and (3), we are proposing that the MACT floor level of control is to reduce organic HAP either by 85 percent or to a concentration of 20 parts per million by volume (ppmv), when using a combustion control device, or to a concentration of 50 ppmv when using a non-combustion control device. We determined that this level of control represents the MACT floor using available data from the original development of the APR MACT standards, as well as from title V permits for facilities in the source category.

As part of our beyond-the-floor analysis, we considered control options more stringent than the MACT floor and identified two such options. For Option 1, we evaluated the impacts of requiring a 95-percent emissions reduction, assuming that a scrubber would be used to achieve this increased level of control. For Option 2 we evaluated the impacts of requiring a 98-percent emissions reduction, assuming either a recuperative thermal oxidizer or a regenerative thermal oxidizer would be used to achieve this increased control level.

Table 10 presents the impacts for the MACT floor and the two beyond-the-floor options considered. As seen in Table 10, the MACT floor level of control is expected to reduce HAP emissions by approximately 20.1 tpy and have a cost effectiveness of $16,900/ton of HAP removed. For Option 1, we estimated the capital costs to be approximately $1.3 million, and the total annualized costs are estimated to be approximately $390,000. The estimated HAP emissions reduction is approximately 22.5 tpy, and the incremental cost effectiveness between the MACT floor and Option 1 is approximately $19,500/ton. For Option 2, we estimated the capital costs to be approximately $3.7 million, and the total annualized costs are estimated to be approximately $1.2 million. The estimated HAP emissions reduction is approximately 23.2 tpy, and the incremental cost effectiveness between Option 1 and Option 2 is approximately $1.1 million/ton. We solicit comment on the emissions and emissions release parameters from continuous process vents at existing APR facilities.

For further details on the assumptions and methodologies used in this analysis, see the technical memorandum titled *MACT Floor and Beyond-the-Floor Analyses for Unregulated Emission Sources in the Acrylic and Modacrylic Fibers and Amino and Phenolic Resins Production Source Categories,* available in the docket for this action.

While, as discussed in section V.B below, the continuous process vent control options are not needed to support the EPA's finding under CAA section 112(f) that the APR MACT standards already protect public health with an ample margin of safety, and while we do not factor quantified risk reductions into CAA section 112(d)(2) beyond-the-floor analyses, for informational purposes we note that neither Option 1 nor Option 2 for continuous process vents would reduce the MIR or the maximum chronic non-cancer TOSHI for the source category because neither the MIR nor the non-cancer TOSHI is not caused by emissions from continuous process vents.

TABLE 10—NATIONWIDE EMISSIONS REDUCTION AND COST IMPACTS OF CONTROL OPTIONS FOR CONTINUOUS PROCESS VENTS AT EXISTING APR FACILITIES

Regulatory alternatives	HAP emissions reduction (tpy)	Capital cost (million $)	Annual cost ($/yr)	Cost effectiveness ($/ton HAP removed)	Incremental cost effectiveness ($/ton HAP removed)
Baseline (MACT floor)	20.1	1.1	340,000	16,900	.....
Option 1 (Beyond-the-floor)	22.5	1.3	390,000	17,200	19,500
Option 2 (Beyond-the-floor)	23.2	3.7	1,200,000	51,000	1,100,000

Based on this analysis, we do not believe the costs of the either beyond-the-floor option are reasonable, given the level of HAP emissions reduction that would be achieved with these control options. Therefore, we are proposing to revise the APR MACT standards to require the MACT floor level of control for continuous process vents.

B. What are the results of the risk assessment and analyses?

1. Inhalation Risk Assessment Results

Table 11—provides an overall summary of the inhalation risk assessment results for the APR source category.

TABLE 11—APR INHALATION RISK ASSESSMENT RESULTS

Number of facilities [1]	Maximum individual cancer risk (in 1 million) [2]		Population at risk ≥ 1-in-1 million	Annual cancer incidence (cases per year)	Maximum chronic non-cancer TOSHI [3]		Maximum off-site acute non-cancer HQ [4]
	Actual emissions level	Allowable emissions level			Actual emissions level	Allowable emissions level	
18	9	10	6,300	0.001	0.2	0.7	HQ_{REL} = 10 formaldehyde HQ_{AEGL-1} = 0.5 formaldehyde

[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk.

[3] Maximum TOSHI. The target organ with the highest TOSHI for the APR source category is the respiratory system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which in most cases is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute dose-response value. See section III.A.3 of this preamble for explanation of acute dose-response values.

The inhalation risk modeling was performed using actual emissions level data. As shown in Table 11, the results of the inhalation risk assessment indicated the maximum lifetime individual cancer risk could be up to 9-in-1 million, the estimated maximum chronic non-cancer TOSHI value is 0.2 and the estimated maximum off-facility site acute HQ value is 10, based on the actual emissions level and the REL value for formaldehyde. The total estimated national cancer incidence from these facilities based on actual emission levels is 0.001 excess cancer cases per year or one case in every 1,000 years.

Based on our analysis, we estimate that the MACT-allowable emissions levels of organic HAP could be up to 3.4 times the actual emissions for reactor batch process vents in this source category. Because it was not possible to determine whether an emission point was a reactor batch process vent or a non-reactor batch process vent in the NEI data available for this source category, we applied the 3.4 factor to all organic HAP emissions associated with point (rather than fugitive) sources to be conservative. The maximum lifetime individual cancer risk associated with emissions from point sources is estimated to be 3-in-1 million at actual emissions levels. Applying the 3.4 factor to this value results in a MACT-allowable cancer risk of 10-in-1 million. The maximum TOSHI associated with emissions from point sources is estimated to be 0.2 based on actual emissions levels, and application of the 3.4 factor results in a TOSHI at the MACT-allowable emissions level of approximately 0.7. For more detail about this estimate of the ratio of actual to MACT-allowable emissions and the estimation of MACT-allowable emission levels (and associated risks and impacts), see the memorandum, *MACT Allowable Emissions and Risks for the Acrylic and Modacrylic Fibers, Amino/Phenolic Resins, and Polycarbonate Production Source Categories,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

2. Acute Risk Results

We estimate that the maximum off-facility site acute HQ value is 10, based on the actual emissions level and the REL value for formaldehyde. The worst-case maximum estimated 1-hour exposure to formaldehyde outside the facility fence line is 0.6 mg/m^3. This estimated worst-case exposure exceeds the 1-hour REL by a factor of 10 (HQ_{REL} = 10) and is below the 1-hour AEGL–1 (HQ_{AEGL-1} = 0.5). This exposure estimate does not exceed the AEGL–1, but does exceed the workplace ceiling level guideline for the formaldehyde value developed by the National Institutes for Occupational Safety and Health (NIOSH) [28] ''for any 15 minute period in a work day'' (NIOSH REL-ceiling value of 0.12 mg/m^3; HQ_{NIOSH} = 5). The estimate is also above the value developed by the American Conference of Governmental Industrial Hygienists (ACGIH) as ''not to be exceeded at any time'' (ACGIH TLV-ceiling value of 0.37 mg/m^3; HQ_{ACGIH} = 2). Additionally, the estimated maximum acute exposure exceeds the Air Quality Guideline value that was developed by the World Health Organization [29] for 30-minute exposures (0.1 mg/m^3; HQ_{WHO} = 6). We solicit comment on the use of the occupational values described above in the interpretation of these worst-case acute screening exposure estimates for the APR source category.

3. Multipathway Risk Screening Results

Emissions of three PB–HAP are reported in the data set for this source category, including lead compounds (1 facility), cadmium compounds (2 facilities) and POM (analyzed as benzo(a)pyrene TEQ) (2 facilities). Reported emissions of cadmium compounds and POM are lower than the multipathway screening levels for those PB–HAP, indicating low potential for multipathway risks. Lead is a PB–HAP, but the National Ambient Air Quality Standards (NAAQS) value (which was used for the chronic non-cancer risk assessment) takes into account air-related multipathway exposures, so a separate multipathway screening value was not developed. Results of the analysis for lead indicate that the maximum HEM modeled annual off-site ambient lead concentration was less than 1 percent of the NAAQS for lead, and if the annual emissions occurred during a 3-month period (which is highly unlikely) the maximum 3-month rolling average concentrations would still be less than 1 percent of the NAAQS, indicating low potential for multipathway risks from lead emissions from these facilities. Emissions of lead from this source category were limited to 0.03 lb/yr from a single facility.

4. Environmental Risk Screening Results

As described in section III.A.6, we conducted an environmental risk screening assessment for the APR source category. In the Tier I screening analysis for the PB–HAP other than lead emitted by some sources in the category (POM and cadmium), none of the individual modeled concentrations for any facility in the source category exceeds any of the ecological benchmarks (either the LOAEL or NOAEL). Therefore, we did not conduct a Tier II assessment. For lead compounds, we did not estimate any exceedances of the secondary lead NAAQS. Acid gas emissions were not identified from any source in the category. Based on our screening analysis, we did not identify an adverse environmental effect as defined in CAA section 112(a)(7) from HAP emissions from this source category.

5. Facility-Wide Risk Results

Table 12 displays the results of the facility-wide risk assessment for the APR source category. This assessment was conducted based on actual emission levels. For detailed facility-specific results, see Appendix 4 of the *Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category* in the docket for this action.

[28] NIOSH Occupational Safety and Health Guideline for Formaldehyde; *http://www.cdc.gov/niosh/docs/81-123/pdfs/0293.pdf.*

[29] WHO (2000). Chapter 5.8 Formaldehyde, in Air Quality Guidelines for Europe, second edition. World Health Organization Regional Publications, European Series, No. 91. Copenhagen, Denmark. Available on-line at *http://www.euro.who.int/data/assets/pdf_file/0005/74732/E71922.pdf.*

TABLE 12—APR FACILITY-WIDE RISK ASSESSMENT RESULTS

Number of facilities analyzed	18
Cancer Risk:	
Estimated maximum facility-wide individual cancer risk (in 1 million)	9
Number of facilities with estimated facility-wide individual cancer risk of 100-in-1 million or more	0
Number of facilities at which the APR source category contributes 50 percent or more to the facility-wide individual cancer risks of 100-in-1 million or more	0
Number of facilities at which the APR source category contributes 50 percent or more to the facility-wide individual cancer risk of 1-in-1 million or more	7
Chronic Non-cancer Risk:	
Maximum facility-wide chronic non-cancer TOSHI	0.2
Number of facilities with facility-wide maximum non-cancer TOSHI greater than 1	0
Number of facilities at which the APR source category contributes 50 percent or more to the facility-wide maximum non-cancer TOSHI of 1 or more	0

The facility-wide MIR from all HAP emissions at a facility that contains sources subject to the APR MACT standards is estimated to be 9-in-1 million, based on actual emissions. There are 10 facilities with facility-wide MIR of 1-in-1 million or greater, and 7 of these facilities have APR production operations that contribute greater than 50 percent to the facility-wide risks.

The facility-wide maximum individual chronic non-cancer TOSHI is estimated to be 0.2 based on actual emissions.

6. What demographic groups might benefit from this regulation?

To determine whether or not to conduct a demographics analysis, we look at a combination of factors including the MIR, non-cancer TOSHI, population around the facilities in the source category, and other relevant factors. For the APR source category, our analyses show that actual emissions from the APR source category result in no individuals being exposed to cancer risk greater than 9-in-1 million or a non-cancer TOSHI greater than 1. In addition, we estimate the cancer incidence for the source category to be 0.001 cases per year. Therefore, we did not conduct an assessment of risks to individual demographic groups for this rulemaking. However, we did conduct a proximity analysis, which identifies any overrepresentation of minority, low income or indigenous populations near facilities in the source category. The results of this analysis are presented in the section of this preamble entitled ''Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.''

C. What are our proposed decisions regarding risk acceptability, ample margin of safety and adverse environmental effects?

1. Risk Acceptability

As noted in section III.B of this preamble, we weigh all health risk factors in our risk acceptability determination, including the MIR; the number of persons in various risk ranges; cancer incidence; the maximum non-cancer HI; the maximum acute non-cancer HQ; the extent of non-cancer risks; the potential for adverse environmental effects; distribution of risks in the exposed population; and risk estimation uncertainty (54 FR 38044, September 14, 1989). For the APR source category, the risk analysis we performed indicates that the cancer risks to the individual most exposed could be up to 9-in-1 million due to actual emissions and up to 10-in-1 million due to allowable emissions. These values are considerably less than 100-in-1 million, which is the presumptive level of acceptability. The risk analysis also shows low cancer incidence (1 in every 1,000 years), low potential for human health multipathway effects, and that chronic non-cancer health impacts are unlikely.

We estimate that the worst-case acute HQ could exceed 1 for one HAP, formaldehyde, with a potential maximum HQ up to 10 based on the acute REL for formaldehyde. Three of the 18 facilities in this source category had an estimated HQ greater than 1. The maximum HQ based on an AEGL–1 is 0.5, based on the AEGL–1 for formaldehyde. As described earlier in this preamble, the acute assessment includes some conservative assumptions and some uncertainties. Considering the improbable assumption that worst-case meteorological conditions are present at the same time that maximum hourly emissions of formaldehyde exceed the average hourly emission rate by a factor of 10 at most emission points simultaneously, coincident with individuals being in the location of maximum impact, and considering the low acute HQ values based on the AEGL–1 collectively with the REL value, we believe that it is unlikely that HAP emissions from this source category would result in adverse acute health effects. Further discussion on these assumptions can be found in the *Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category,* which is available in the docket for this action.

Our screening level evaluation of the potential health risks associated with emissions of PB–HAP indicates low potential for adverse multipathway impacts due to emissions of the PB–HAP associated with the source category. The *Draft Residual Risk Assessment for the Amino/Phenolic Resins Production Source Category* in the docket also discusses the screening level evaluation.

Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 9-in-1 million. The maximum chronic non-cancer TOSHI is estimated to be 0.2.

The EPA has weighed the various health risk measures and health factors, including risk estimation uncertainty, discussed above and in section III.A.8 of this preamble, and we are proposing to determine that the risks from the APR source category are acceptable.

2. Ample Margin of Safety Analysis

Although we are proposing to determine that the risks from the APR source category are acceptable, risk estimates for 6,300 individuals in the exposed population are above 1-in-1 million. Consequently, we considered whether the APR MACT standards provide an ample margin of safety to protect public health. In this analysis, we investigated available emissions control options that might reduce the risk associated with emissions from the source category and considered this

information along with all of the health risks and other health information considered in the risk acceptability determination.

For the APR source category, we did not identify any further control options for equipment leaks, storage vessels, continuous process vents, batch process vents or heat exchange systems beyond what is currently required in the rule or what we considered for proposal in this action (see section V.A of this preamble for our proposed actions related to storage vessels and continuous process vents).

In accordance with the approach established in the Benzene NESHAP, the EPA weighed all health risk measures and information considered in the risk acceptability determination, along with additional factors relating to the appropriate level of control, including the costs and economic impacts of emissions controls, technological feasibility, uncertainties and other relevant factors in making our ample margin of safety determination. Considering all of these factors, the EPA is proposing to determine that the current MACT standards in 40 CFR part 63, subpart OOO for the APR source category provide an ample margin of safety to protect public health.

3. Adverse Environmental Effects

Based on the results of our environmental risk screening assessment, we do not expect there to be an adverse environmental effect as a result of HAP emissions from the APR source category. We are proposing to determine that it is not necessary to set a more stringent standard to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

D. What are the results and proposed decisions based on our technology review?

In the period of time since the APR MACT standards were promulgated, the EPA has developed air toxics regulations for numerous source categories that emit organic HAP from the same type of emissions sources that are present in the APR source category. We reviewed the regulatory requirements and technical analyses for these regulations for new practices, processes, and control techniques. We also conducted a search of the BACT/RACT/LAER clearinghouse for controls for VOC- and HAP-emitting processes in the Polymers and Resins and the SOCMI categories with permits dating back to 1997.

For storage vessels located at new sources, we identified two potential developments in existing practices and control techniques not currently required by the APR MACT standards. The current requirements for storage vessels at a new source are to maintain and operate either an internal or an external floating roof, or use a fixed roof tank with emissions vented through a closed vent system to any combination of control devices that achieve a 95 percent emissions reduction or reduce emissions to specified control device outlet concentrations. These requirements apply to storage vessels having a capacity of 50,000 gallons or greater and a vapor pressure of 2.45 psia or greater, or a capacity of 90,000 gallons or greater and a vapor pressure of 0.15 psia or greater. As in the identified beyond-the-floor options for existing storage vessels in the APR source category, we evaluated revising the applicability of the APR new source MACT requirements to include smaller capacity storage vessels and/or storage vessels containing liquids with lower vapor pressures (Option 1), and under Option 2 we considered the impacts of requiring a 98 percent emissions reduction for storage vessels meeting the capacity and vapor pressure thresholds of Option 1. Under Options 1 and 2, we evaluated the impacts of changing the thresholds at which emissions controls are required to be consistent with other storage vessel standards already required for the chemical industry regulated by the HON. Specifically, as shown in Table 13, under this option, we evaluated requiring the new source level of emissions control for storage vessels of capacities greater than or equal to 20,000 gal, but less than 40,000 gal if the MTVP is 1.9 psia or greater, and for storage vessels of capacities greater than or equal to 40,000 gal, but less than 90,000 gal if the MTVP is 0.75 psia or greater. Control would still be required for storage vessels of 90,000 gal or greater, if the MTVP is 0.15 psia or greater, as currently required for storage vessels at new sources in the APR source category, but which is not a requirement of the HON. Since available data for the source category indicates most APR storage vessels have fixed-roofs, under Option 2, we considered the impacts of requiring a 98 percent emissions reduction for storage vessels meeting the capacity and vapor pressure thresholds under Option 1, assuming a RTO would be used to attain this increased level of control.

Table 14 presents the impacts of the options considered for storage vessels at a new source in the APR source category under the technology review. Since there are currently no new sources in the APR source category, this analysis was conducted based on a single model APR facility. As seen by the incremental cost effectiveness column in Table 14 of this preamble, for Option 1, we estimated the capital costs to be approximately $11,000, and the total annualized costs are estimated to be approximately $2,500. The estimated HAP emissions reduction is approximately 1.1 tpy, and the cost effectiveness is approximately $2,400/ton. For Option 2, we estimated the capital costs to be approximately $590,000, and the total annualized costs are estimated to be approximately $170,000. The estimated HAP emissions reduction is approximately 1.2 tpy, and the incremental cost effectiveness between Option 1 and Option 2 is approximately $1.43 million/ton.

TABLE 13—STORAGE TANK SIZE AND VAPOR PRESSURE THRESHOLDS CONSIDERED UNDER THE TECHNOLOGY REVIEW FOR NEW SOURCES

Regulatory alternatives	Size and vapor pressure thresholds for control	
	Size (gallons)	Vapor pressure (psia)
Current MACT Requirements	50,000 ≤ capacity	≥2.45
	90,000 ≤ capacity	≥0.15
Options 1 and 2	20,000 ≤ capacity <40,000	≥1.9
	40,000 ≤ capacity <90,000	≥0.75
	90,000 ≤ capacity	≥0.15

TABLE 14—FACILITY EMISSIONS REDUCTION AND COST IMPACTS OF CONTROL OPTIONS FOR STORAGE VESSELS AT A MODEL NEW APR FACILITY

Regulatory alternatives	HAP emissions reduction (tpy)	Capital cost ($)	Annual cost ($/yr)	Cost effectiveness ($/ton HAP removed)	Incremental cost effectiveness ($/ton HAP removed)
Option 1	1.05	11,200	2,500	2,370	
Option 2	1.17	590,000	171,000	146,000	1,430,000

Based on this analysis, we believe the costs of Option 1 are reasonable, given the level of HAP emissions reduction that would be achieved with these control options. We believe that the costs of Option 2 are not reasonable, given the level of HAP emission reduction they would achieve. Therefore, we are proposing to revise the APR MACT standards to require the current level of control for storage vessels at new sources with the specified capacities and vapor pressures for Option 1.

For equipment leaks, continuous process vents, batch process vents and heat exchange systems, beyond what is currently required in the rule or is being proposed in this action, we did not identify: any add-on control technology or other equipment that was not identified and considered during MACT development; any improvements in add-on control technology or other equipment (that was identified and considered during MACT development) that could result in significant additional HAP emission reduction; any work practice or operational procedure that was not identified and considered during MACT development; any process change or pollution prevention alternative that could be broadly applied that was not identified and considered during MACT development; or any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during MACT development).

For more detailed information on the results of the EPA's technology review, see the memorandum, *Developments in Practices, Processes, and Control Technologies for the Amino/Phenolic Resins Production Source Category* available in the docket for this action (EPA–HQ–OAR–2012–0133).

VI. Analytical Results and Proposed Decisions for the PC Source Category

A. What are the results of the risk assessment and analyses?

1. Inhalation Risk Assessment Results

Table 15 provides an overall summary of the inhalation risk assessment results for the source category.

TABLE 15—PC INHALATION RISK ASSESSMENT RESULTS

Number of facilities [1]	Maximum individual cancer risk (in 1 million) [2]		Population at risk ≥ 1-in-1 million	Annual cancer incidence (cases per year)	Maximum chronic non-cancer TOSHI [3]		Maximum off-site acute non-cancer HQ [4]
	Actual emissions level	Allowable emissions level			Actual emissions level	Allowable emissions level	
4	0.3	0.3	0	0.00008	0.04	0.04	HQ_{REL} = 2 triethylamine.

[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the PC source category is the respiratory system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which in most cases is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute dose-response value. See section III.A.3 of this preamble for explanation of acute dose-response values.

The inhalation risk modeling was performed using actual emissions level data. As shown in Table 15, the results of the inhalation risk assessment indicated the maximum lifetime individual cancer risk could be up to 0.3-in-1 million, the estimated maximum chronic non-cancer TOSHI value is 0.04 and the estimated maximum off-facility site acute HQ value is 2, based on the actual emissions level and the REL value for triethylamine. The total estimated national cancer incidence from these facilities based on actual emission levels is 0.00008 excess cancer cases per year or one case in every 13,000 years.

Based on our analysis, we estimate that the MACT-allowable emissions level for organic HAP emissions from certain storage vessels could be up to 2.5 times the actual emissions from this source category. However, as we estimate that storage vessel emissions contribute only 5 percent to the total organic HAP emissions for the source category, the application of the factor of 2.5 to the organic HAP emissions from these sources resulted in essentially no increase in cancer risks, as the risk increase is so small that when the risk value is rounded to one significant digit, there is no change. Therefore, the cancer risk results for MACT-allowable emissions are approximately equal to those for actual emissions. For more detail about this estimate of the ratio of actual to MACT-allowable emissions and the estimation of MACT-allowable emission levels (and associated risks and impacts), see the memorandum, *MACT Allowable Emissions and Risks for the Acrylic and Modacrylic Fibers, Amino/Phenolic Resins, and Polycarbonate Production Source Categories,* in the docket for this action.

2. Acute Risk Results

We estimate that the maximum off-facility site acute HQ value is 2, based on the actual emissions level and the REL value for triethylamine.

3. Multipathway Risk Screening Results

There were no reported emissions of PB–HAP, indicating low potential for human health multipathway risks as a

result of PB–HAP emissions from this source category.

4. Environmental Risk Screening Results

The emissions data for the PC source category indicate that sources within this source category do not emit any of the seven pollutants that we identified as ''environmental HAP,'' as discussed earlier in this preamble. Based on the processes and materials used in the source category, we do not expect any of the seven environmental HAP to be emitted. Also, we are unaware of any adverse environmental effect caused by emissions of HAP that are emitted by this source category. Therefore, we do not expect an adverse environmental effect as a result of HAP emissions from this source category.

5. Facility-Wide Risk Results

Table 16 displays the results of the facility-wide risk assessment for the PC source category. This assessment was conducted based on actual emission levels. For detailed facility-specific results, see Appendix 4 of the *Draft Residual Risk Assessment for the Polycarbonate Production Source Category* in the docket for this action.

TABLE 16—PC FACILITY-WIDE RISK ASSESSMENT RESULTS

Number of facilities analyzed	4
Cancer Risk:	
Estimated maximum facility-wide individual cancer risk (in 1 million)	20
Number of facilities with estimated facility-wide individual cancer risk of 100-in-1 million or more	0
Number of facilities at which the PC source category contributes 50 percent or more to the facility-wide individual cancer risks of 100-in-1 million or more	0
Number of facilities at which the PC source category contributes 50 percent or more to the facility-wide individual cancer risk of 1-in-1 million or more	0
Chronic Non-cancer Risk:	
Maximum facility-wide chronic non-cancer TOSHI	2
Number of facilities with facility-wide maximum non-cancer TOSHI greater than 1	1
Number of facilities at which the PC source category contributes 50 percent or more to the facility-wide maximum non-cancer TOSHI of 1 or more	0

The facility-wide MIR from all HAP emissions at a facility that contains sources subject to the PC MACT standards is estimated to be 20-in-1 million, based on actual emissions. Of the 4 facilities included in this analysis, none have a facility-wide MIR of 100-in-1 million. There are 2 facilities with facility-wide MIR of 1-in-1 million or greater. Neither of these facilities have PC production operations that contribute greater than 50 percent to the facility-wide risks.

The facility-wide maximum individual chronic non-cancer TOSHI is estimated to be 2 based on actual emissions. Of the 4 facilities included in this analysis, one has facility-wide maximum chronic non-cancer TOSHI values greater than or equal to 1.

6. What demographic groups might benefit from this regulation?

To determine whether or not to conduct a demographics analysis, we look at a combination of factors including the MIR, non-cancer TOSHI, population around the facilities in the source category, and other relevant factors. For the PC source category, our analyses show that actual emissions from the PC source category result in no individuals being exposed to cancer risk greater than 1-in-1 million or a non-cancer TOSHI greater than 1. Therefore, we did not conduct an assessment of risks to individual demographic groups for this rulemaking. However, we did conduct a proximity analysis, which identifies any overrepresentation of minority, low income or indigenous populations near facilities in the source category. The results of this analysis are presented in the section of this preamble entitled ''Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.''

B. What are our proposed decisions regarding risk acceptability, ample margin of safety and adverse environmental effects?

1. Risk Acceptability

As noted in section III.B of this preamble, we weigh all health risk factors in our risk acceptability determination, including the MIR; the number of persons in various risk ranges; cancer incidence; the maximum non-cancer HI; the maximum acute non-cancer HQ; the extent of non-cancer risks; the potential for adverse environmental effects; distribution of risks in the exposed population; and risk estimation uncertainty (54 FR 38044, September 14, 1989). For the PC source category, the risk analysis we performed indicates that the cancer risks to the individual most exposed could be up to 0.3-in-1 million due to both actual and allowable emissions. This value is considerably less than 100-in-1 million, which is the presumptive level of acceptability. The risk analysis also shows low cancer incidence (1 in every 13,000 years), low potential for human health multipathway effects because no PB–HAP are emitted from this source category, and that chronic non-cancer health impacts are unlikely.

We estimate that the worst-case acute HQ could exceed 1 for one HAP, triethylamine, with a potential maximum HQ up to 2 based on the acute REL for triethylamine. One of the 4 facilities in this source category had an estimated HQ greater than 1. As described earlier in this preamble, the acute assessment includes some conservative assumptions and some uncertainties. Considering the improbable assumption that worst-case meteorological conditions are present at the same time that maximum hourly emissions formaldehyde exceed the average hourly emission rate by a factor of 10 at most emission points simultaneously, and coincident with individuals being in the location of maximum impact, we believe that it is unlikely that HAP emissions from this source category would result in adverse acute health effects. Further discussion on these assumptions can be found in the *Draft Residual Risk Assessment for the Polycarbonate Production Source Category,* which is available in the docket for this action.

Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 20-in-1 million and the maximum chronic non-cancer TOSHI is estimated to be 2. The source category contributes less than 1 percent to the maximum facility-wide cancer risk and less than 1 percent to the maximum facility-wide TOSHI.

The EPA has weighed the various health risk measures and health factors, including risk estimation uncertainty, discussed above and in section III.A.8 of

this preamble, and we are proposing to determine that the risks from the PC source category are acceptable.

2. Ample Margin of Safety Analysis

The PC source category emits HAP which are known, probable or possible carcinogens. The EPA evaluated the emissions of these HAP and estimates that the cancer risks to the individual most exposed are less than 1-in-1 million, based on actual and MACT-allowable emissions. Our analysis also indicates that chronic non-cancer risks are low, based on actual and MACT-allowable emissions. We estimate that emissions from the PC source category would result in a maximum chronic non-cancer TOSHI less than 1 for the individual most exposed. While the assessment for acute impacts suggests that short-term triethylamine concentrations at one facility could exceed the REL, we believe it unlikely that acute impacts would occur due to the conservative assumptions and uncertainties associated with the acute analysis. These assumptions include having worst-case meteorological conditions present at the same time that maximum hourly emissions of triethylamine exceed the average hourly emission rate by a factor of 10, coincident with individuals being in the location of maximum impact.

In accordance with the approach established in the Benzene NESHAP, the EPA weighed all health risk measures and information considered in the risk acceptability determination, along with additional factors relating to the appropriate level of control, including the costs and economic impacts of emissions controls, technological feasibility, uncertainties and other relevant factors in making our ample margin of safety determination. Considering all of these factors, the EPA is proposing to determine that the current MACT standards in 40 CFR part 63, subpart YY for the PC source category provide an ample margin of safety to protect public health.

3. Adverse Environmental Effects

We did not identify emissions of the seven environmental HAP included in our environmental risk screening, and are unaware of any adverse environmental effects caused by other HAP emitted by this source category. Therefore, we do not expect there to be an adverse environmental effect as a result of HAP emissions from this source category, and we are proposing to determine that it is not necessary to set a more stringent standard to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

C. What are the results and proposed decisions based on our technology review?

In the period of time since the PC MACT standards were promulgated, the EPA has developed air toxics regulations for numerous source categories that emit organic HAP from the same type of emissions sources that are present in the PC source category. We reviewed the regulatory requirements and technical analyses for these regulations for new practices, processes, and control techniques. We also conducted a search of the BACT/RACT/LAER clearinghouse for controls for VOC- and HAP-emitting processes in the Polymers and Resins and the SOCMI categories with permits dating back to 1997.

The PC MACT standards currently require compliance with either subpart TT or subpart UU of 40 CFR part 63 to control emissions from equipment leaks. While many of the provisions of these two rules are the same or similar, subpart UU requires the use of a lower leak definition for valves in gas and vapor service and in light liquid service, pumps in light liquid service, and connectors in gas and vapor service and in light liquid service. Specifically, subpart UU lowers the leak definition for valves from 10,000 ppm (in subpart TT) to 500 ppm, lowers the leak definition for pump seals from 10,000 ppm (in subpart TT) to 1,000 ppm, and requires instrument monitoring of connectors with a leak definition of 500 ppm, as opposed to sensory monitoring (in subpart TT). We identified the more stringent leak definitions of subpart UU as a development in practices, processes or control technologies for LDAR programs.

Assuming that each of the four PC sources currently comply with subpart TT, we analyzed the costs and emission reductions associated with switching from a subpart TT LDAR program to a subpart UU LDAR program, both including and not including the subpart UU connector monitoring requirements, which can be an expensive component of an LDAR program. The estimated costs and emissions reductions associated with these options are shown in Table 17. For Option 1 (subpart UU without connector monitoring), we estimated the capital costs to be approximately $16,000, and the total annualized costs are estimated to be approximately $2,200. The estimated HAP emissions reduction is approximately 2.1 tpy, and the cost effectiveness is approximately $1,000/ton. For Option 2 (subpart UU with connector monitoring), we estimated the capital costs to be approximately $93,000, and the total annualized costs are estimated to be approximately $32,000. The estimated HAP emissions reduction is approximately 4.4 tpy, and the cost effectiveness is approximately $7,400/ton. The incremental cost effectiveness between Option 1 and Option 2 is approximately $13,000.

While, as discussed in section VI.B above, the equipment leaks control options are not needed to support the EPA's finding under CAA section 112(f) that the PC MACT standards already protect public health with an ample margin of safety, and while we do not factor quantified risk reductions into CAA section 112(d)(6) technology review analyses, for informational purposes we note that neither Option 1 nor Option 2 for equipment leaks would reduce the MIR for the source category because the MIR is not caused by emissions from equipment leaks. However, the maximum chronic non-cancer TOSHI is due to emissions from equipment leaks. At the MACT-allowable emissions level, under Option 1, the TOSHI would be reduced from 0.04 to 0.03, and under Option 2, the TOSHI would be reduced to 0.02.

TABLE 17—PC EQUIPMENT LEAK OPTIONS IMPACTS

Regulatory alternatives	HAP emissions reduction (tpy)	Capital cost ($)	Annual cost ($/yr)	Cost effectiveness ($/ton HAP removed)	Incremental cost effectiveness ($/ton HAP removed)
Option 1: Subpart UU, no connector monitoring	2.1	16,000	2,200	1,000	
Option 2: Subpart UU with connector monitoring	4.4	93,000	32,000	7,400	13,000

Based on this analysis, we believe the costs of Option 1 are reasonable, given the level of HAP emissions reduction that would be achieved with this control option. We believe the costs of Option 2 are not reasonable, given the level of HAP emission reduction that control option would achieve. Therefore, we are proposing to revise the PC MACT standards to require facilities to comply with subpart UU rather than subpart TT, with the exception of connectors in gas and vapor service and in light liquid service. We are proposing to retain the option to comply with either subpart TT or subpart UU for these components.

For storage vessels, process vents and wastewater treatment systems, beyond what is currently required in the rule or is being proposed in this action, we did not identify: Any add-on control technology or other equipment that was not identified and considered during MACT development; any improvements in add-on control technology or other equipment (that was identified and considered during MACT development) that could result in significant additional HAP emission reduction; any work practice or operational procedure that was not identified and considered during MACT development; any process change or pollution prevention alternative that could be broadly applied that was not identified and considered during MACT development; or any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during MACT development).

For more detailed information on the results of the EPA's technology review, see the memorandum, *Developments in Practices, Processes, and Control Technologies for the Polycarbonate Production Source Category,* available in the docket for this action (EPA–HQ–OAR–2012–0133).

VII. What other actions are we proposing?

In addition to the proposed changes to the standards described above, we reviewed the MACT standards to determine whether we should make additional amendments. From this review we have identified four additional revisions. First, we are proposing revisions to the SSM provisions of the MACT rule in order to ensure that they are consistent with the court decision in *Sierra Club* v. *EPA,* 551 F. 3d 1019 (D.C. Cir. 2008), which vacated two provisions that exempted sources from the requirement to comply with otherwise applicable section 112(d) emission standards during periods of SSM. As part of these SSM revisions, we are proposing to require monitoring of PRD in organic HAP service that release to the atmosphere. Second, we are proposing revisions to require electronic reporting of emissions test results. Third, we are proposing to add a definition of ''seal'' to all three rules. Finally, we are seeking comments on the performance of flares in these source categories. We present details and the rationale for the proposed changes related to these issues in the following sections.

A. Startup, Shutdown and Malfunction

In its 2008 decision in *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008), *cert. denied,* 130 S. Ct. 1735 (U.S. 2010), the United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some section 112 standards apply continuously.

We are proposing the elimination of the SSM exemption in the rules regulating each of the three source categories addressed by this rule. Consistent with *Sierra Club* v. *EPA,* we are proposing that the standards in these rules apply at all times. We are also proposing several revisions to Subpart YY and Table 1 to Subpart OOO (the General Provisions applicability table), as is explained in more detail below. For example, we are proposing to eliminate the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption, as further described below.

The EPA has attempted to ensure that the provisions we are proposing to eliminate are inappropriate, unnecessary or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether we have successfully done so.

In proposing the standards in these rules, the EPA has taken into account startup and shutdown periods and has not proposed alternate standards for those periods because facilities in these source categories have not indicated that they will be unable to comply with the standards during these times. Emission reductions for process vents and transfer operations are typically achieved by routing vapors to a control device such as a thermal oxidizer or carbon adsorber. It is common practice to start a control device prior to startup of the emissions source it is controlling, so the control device would be operating before emissions are routed to it. We expect control devices would be operating during startup and shutdown events in a manner consistent with normal operating periods, and that these control devices will be operated to maintain and meet the monitoring parameter operating limits set during the performance test. We do not expect startup and shutdown events to affect emissions from equipment leaks, wastewater sources (e.g., surface impoundments, oil-water separators, organic-water separators) or storage tanks. Leak detection programs associated with equipment leaks are in place to detect leaks, and therefore, it is inconsequential whether the process is operating under normal operating conditions or is in startup or shutdown. Wastewater emissions are also not expected to be significantly affected by startup or shutdown events. Working and breathing losses from storage tanks are the same regardless of whether the process is operating under normal operating conditions or if it is in a startup or shutdown event.

Periods of startup, normal operations and shutdown are all predictable and routine aspects of a source's operations. However, by contrast, malfunction is defined as a ''sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment or a process to operate in a normal or usual manner * * *'' (40 CFR 63.2). The EPA has determined that CAA section 112 does not require that emissions that occur during periods of malfunction be factored into development of CAA section 112 standards. Under section 112, emissions standards for new sources must be no less stringent than the level ''achieved'' by the best-controlled similar source and for existing sources generally must be no less stringent than the average emission limitation ''achieved'' by the best performing 12 percent of sources in the category. There is nothing in CAA section 112 that directs the agency to consider malfunctions in determining the level ''achieved'' by the best-performing or best-controlled sources when setting emission standards. Moreover, while the EPA accounts for variability in setting emissions standards consistent with the section 112 case law, nothing in that case law requires the agency to consider malfunctions as part of that analysis.

Section 112 of the CAA uses the concept of ''best-controlled'' and ''best-performing'' unit in defining the level of stringency that section 112 performance standards must meet. Applying the concept of ''best-controlled'' or ''best-performing'' to a unit that is malfunctioning presents significant difficulties, as malfunctions are sudden and unexpected events.

Further, accounting for malfunctions would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree and duration of various malfunctions that might occur. As such, the performance of units that are malfunctioning is not ''reasonably'' foreseeable. *See,* e.g., *Sierra Club* v. *EPA,* 167 F.3d 658, 662 (D.C. Cir. 1999) (''The EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem. We generally defer to an agency's decision to proceed on the basis of imperfect scientific information, rather than to ''invest the resources to conduct the perfect study.''). *See also, Weyerhaeuser* v. *Costle,* 590 F.2d 1011, 1058 (D.C. Cir. 1978) (''In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by 'uncontrollable acts of third parties,' such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation.''). In addition, the goal of a best controlled or best performing source is to operate in such a way as to avoid malfunctions of the source, and accounting for malfunctions could lead to standards that are significantly less stringent than levels that are achieved by a well-performing non-malfunctioning source. The EPA's approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

In the event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, ''sudden, infrequent, not reasonably preventable'' and was not instead ''caused in part by poor maintenance or careless operation.'' See 40 CFR 63.2, definition of malfunction.

Finally, the EPA recognizes that even equipment that is properly designed and maintained can sometimes fail and that such failure can sometimes cause a violation of an emission standard. *See,* e.g., *State Implementation Plans: Response to Petition for Rulemaking; Findings of Excess Emissions During Periods of Startup, Shutdown, and Malfunction;* Proposed rule, 78 FR 12460 (Feb. 22, 2013); *State Implementation Plans: Policy Regarding Excessive Emissions During Malfunctions, Startup, and Shutdown* (September 20, 1999); *Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions* (February 15, 1983). The EPA is therefore proposing to add an affirmative defense to civil penalties for violations of emission standards in these rules that are caused by malfunctions. (See proposed 40 CFR 63.1100(h) and 40 CFR 63.1400(l) defining ''affirmative defense'' to mean, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding).

We also are proposing other regulatory provisions to specify the elements that are necessary to establish this affirmative defense; the source must prove by a preponderance of evidence that it has met all of the elements set forth in proposed 40 CFR 63.1100(h) and 40 CFR 63.1400(l). (See 40 CFR 22.24). The proposed criteria are designed in part to ensure that the affirmative defense is available only where the event that causes a violation of the emission standard meets the narrow definition of malfunction in 40 CFR 63.2 (sudden, infrequent, not reasonably preventable and not caused by poor maintenance and/or careless operation). For example, to successfully assert the proposed affirmative defense, the source must prove by a preponderance of the evidence that the violation ''[w]as caused by a sudden, infrequent, and unavoidable failure of air pollution control, process equipment, or a process to operate in a normal or usual manner . . . .'' The proposed criteria also are designed to ensure that steps are taken to correct the malfunction, to minimize emissions in accordance with proposed 40 CFR 63.1108(a)(4)(ii) and 40 CFR 63.1400(k)(4) and to prevent future malfunctions. For example, under the proposed criteria, the source must prove by a preponderance of the evidence that ''[r]epairs were made as expeditiously as possible when a violation occurred…'' and that ''[a]ll possible steps were taken to minimize the impact of the violation on ambient air quality, the environment and human health . . . .'' Under the proposal, in any judicial or administrative proceeding, the Administrator may challenge the assertion of the affirmative defense and, if the respondent has not met its burden of proving all of the requirements in the affirmative defense, appropriate penalties may be assessed in accordance with section 113 of the CAA (see also 40 CFR 22.27).

The EPA is proposing to include an affirmative defense in an attempt to balance a tension, inherent in many types of air regulation, to ensure adequate compliance while simultaneously recognizing that despite the most diligent of efforts, emission standards may be violated under circumstances beyond the control of the source. The EPA must establish emission standards that ''limit the quantity, rate, or concentration of emissions of air pollutants on a continuous basis.'' CAA section 302(k), 42 U.S.C. 7602(k) (defining ''emission limitation'' and ''emission standard''). *See, generally, Sierra Club* v. *EPA,* 551 F.3d 1019, 1021 (D.C. Cir. 2008). Thus, the EPA is required to ensure that emissions standards are continuous. The affirmative defense for malfunction events meets this requirement by ensuring that even where there is a malfunction, the emission standard is still enforceable through injunctive relief. The United States Court of Appeals for the Fifth Circuit recently upheld the EPA's view that an affirmative defense provision is consistent with section 113(e) of the CAA. *Luminant Generation Co. LLC* v. *United States EPA,* 714 F.3d 841 (5th Cir. Mar. 25, 2013) (upholding the EPA's approval of affirmative defense provisions in a CAA State Implementation Plan). While ''continuous'' standards are required, there is also case law indicating that in many situations it is appropriate for the EPA to account for the practical realities of technology. For example, in *Essex Chemical* v. *Ruckelshaus,* 486 F.2d 427, 433 (D.C. Cir. 1973), the D.C. Circuit acknowledged that in setting standards under CAA section 111 ''variant

provisions'' such as provisions allowing for upsets during startup, shutdown and equipment malfunction ''appear necessary to preserve the reasonableness of the standards as a whole and that the record does not support the 'never to be exceeded' standard currently in force.'' See also, *Portland Cement Association* v. *Ruckelshaus,* 486 F.2d 375 (D.C. Cir. 1973). Though these earlier cases may no longer represent binding precedent in light of the CAA 1977 amendments and intervening case law such as *Sierra Club* v. *EPA,* they nevertheless support the EPA's view that a system that incorporates some level of flexibility is reasonable and appropriate.

The affirmative defense simply provides for a defense to civil penalties for violations that are proven to be beyond the control of the source. Through the proposed incorporation of an affirmative defense, the EPA is proposing to formalize its approach to malfunctions. In a Clean Water Act setting, the Ninth Circuit required this type of formalized approach when regulating ''upsets beyond the control of the permit holder.'' *Marathon Oil Co.* v. *EPA,* 564 F.2d 1253, 1272–73 (9th Cir. 1977). *See also, Mont. Sulphur & Chem. Co.* v. *EPA,* 666 F.3d 1174 (9th Cir. 2012) (rejecting industry argument that reliance on the affirmative defense was not adequate). *But see, Weyerhaeuser Co.* v. *Costle,* 590 F.2d 1011, 1057–58 (D.C. Cir. 1978) (holding that an informal approach is adequate). The proposed affirmative defense provisions would give the EPA the flexibility to both ensure that its emission standards are ''continuous,'' as required by 42 U.S.C. 7602(k), and account for unplanned upsets and, thus, support the reasonableness of the standard as a whole.

The EPA is proposing the affirmative defense applicable to malfunctions under the delegation of general regulatory authority set out in section 301(a)(1) of the CAA, 42 U.S.C. 7601(a)(1), in order to balance this tension between provisions of the CAA and the practical reality, as case law recognizes, that technology sometimes fails. *See generally, Citizens to Save Spencer County* v. *U.S. Environmental Protection Agency,* 600 F.2d 844, 873 (D.C. Cir. 1979) (using section 301(a) authority to harmonize inconsistent guidelines related to the implementation of federal preconstruction review requirements).

1. General Duty

For the APR MACT standards, we are proposing to revise the General Provisions applicability table (Table 1 to Subpart OOO) entry for 40 CFR 63.6(e)(1)(i) by changing the explanation in column 3. 40 CFR 63.6(e)(1)(i) describes the general duty to minimize emissions. Some of the language in that section is no longer necessary or appropriate in light of the elimination of the SSM exemption. Similarly, for the AMF and PC source categories, we are also proposing to remove this requirement at 40 CFR 63.1108(a)(5). For the AMF, APR and PC MACT standards, we are proposing instead to add general duty regulatory text at 40 CFR 63.1108(a)(4)(ii) and 63.1400(k)(4) that reflects the general duty to minimize emissions while eliminating the reference to periods covered by an SSM exemption. The current language in 40 CFR 63.6(e)(1)(i) characterizes what the general duty entails during periods of SSM. With the elimination of the SSM exemption, there is no need to differentiate between normal operations, startup and shutdown, and malfunction events in describing the general duty. Therefore the language the EPA is proposing for 40 CFR 63.1108(a)(4)(ii) and 63.1400(k)(4) does not include that language from 40 CFR 63.6(e)(1).

For the APR MACT standards, we are also proposing to revise the General Provisions applicability table (Table 1 to Subpart OOO) entry for 40 CFR 63.6(e)(1)(ii) by changing the ''yes'' in the second column to a ''no.'' 40 CFR 63.6(e)(1)(ii) imposes requirements that are not necessary with the elimination of the SSM exemption or are redundant with the general duty requirement being added at 40 CFR 63.1400(k)(4).

2. SSM Plan

For the APR MACT standards, we are proposing to revise the General Provisions applicability table (Table 1 to Subpart OOO) entry for 40 CFR 63.6(e)(3) by changing the ''yes'' in the second column to a ''no.'' Similarly, for the AMF and PC source categories, we are also proposing to remove this requirement at 40 CFR 63.1111(a). Generally, these paragraphs require development of an SSM plan and specify SSM recordkeeping and reporting requirements related to the SSM plan. As noted, the EPA is proposing to remove the SSM exemptions. Therefore, affected units will be subject to an emission standard during such events. The applicability of a standard during such events will ensure that sources have ample incentive to plan for and achieve compliance and thus the SSM plan requirements are no longer necessary.

3. Compliance With Standards

For the APR MACT standards, we are proposing to revise the General Provisions applicability table (Table 1 to Subpart OOO) entry for 40 CFR 63.6(f)(1) by changing the ''yes'' in the second column to a ''no.'' The current language of 40 CFR 63.6(f)(1) exempts sources from non-opacity standards during periods of SSM. As discussed above, the court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some section 112 standard apply continuously. Consistent with *Sierra Club,* the EPA is proposing to revise standards in this rule to apply at all times.

4. Performance Testing

For the APR MACT standards, we are proposing to revise the General Provisions applicability table (Table 1 to Subpart OOO) entry for 40 CFR 63.7(e)(1) by changing the ''yes'' in the second column to a ''no.'' 40 CFR 63.7(e)(1) describes performance testing requirements. Similarly, for the AMF and PC source categories, we are also proposing to revise this requirement at 40 CFR 63.1108(b)(4)(ii).

For the AMF, APR and PC MACT standards, the EPA is instead proposing to add a performance testing requirement at 40 CFR 1108(b)(4)(ii) and 63.1413(a)(2). The performance testing requirements we are proposing to add differ from the General Provisions performance testing provisions in several respects. The regulatory text does not include the language in 40 CFR 63.7(e)(1) that restated the SSM exemption and language that precluded startup and shutdown periods from being considered ''representative'' for purposes of performance testing. The proposed performance testing provisions do not allow performance testing during periods of startup or shutdown. As in 40 CFR 63.7(e)(1), performance tests conducted under this subpart should not be conducted during malfunctions because conditions during malfunctions are not representative of normal operating conditions. The EPA is proposing to add language that requires the owner or operator to record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Currently, 40 CFR 63.7(e) requires that the owner or operator make available to the Administrator such records ''as may be necessary to determine the condition of the performance test'' available to the Administrator upon request, but does not specifically require the information to be recorded. The regulatory text the EPA is proposing to add to this

provision builds on that requirement and makes explicit the requirement to record the information.

5. Monitoring

For the APR MACT standards, we are proposing to revise the General Provisions applicability table (Table 1 to Subpart OOO) entry for 40 CFR 63.8(c)(1)(i) and (iii) by changing the ''yes'' in the second column to a ''no.'' The cross-references to the general duty and SSM plan requirements in those subparagraphs are not necessary in light of other requirements of 40 CFR 63.8 that require good air pollution control practices (40 CFR 63.8(c)(1)) and that set out the requirements of a quality control program for monitoring equipment (40 CFR 63.8(d)).

6. Recordkeeping

For the AMF, APR and PC MACT standards, the EPA is proposing to add recordkeeping requirements during a malfunction to 40 CFR 63.1111(c)(1) and 63.1416(b). The EPA is proposing that this requirement apply to any failure to meet an applicable standard and is requiring that the source record the date, time, and duration of the failure rather than the ''occurrence.'' The EPA is also proposing to add to 40 CFR 63.1111(c)(1) and 63.1416(b) a requirement that sources keep records that include a list of the affected source or equipment and actions taken to minimize emissions, an estimate of the volume of each regulated pollutant emitted over the standard for which the source failed to meet the standard and a description of the method used to estimate the emissions. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

7. Reporting

For the APR MACT standards, we are proposing to revise the General Provisions applicability table (Table 1 to Subpart OOO) entry for 40 CFR 63.10(d)(5) by changing the ''yes'' in the second column to a ''no.'' Section 63.10(d)(5) describes the reporting requirements for startups, shutdowns, and malfunctions. Similarly, for the AMF and PC source categories, we are also proposing to remove this requirement at 40 CFR 63.1111(b).

For the AMF, APR and PC MACT standards, to replace the General Provisions reporting requirement, the EPA is proposing to add reporting requirements to 40 CFR 63.1111(c)(2) and 63.1417(g). The replacement language differs from the General Provisions requirement in that it eliminates periodic SSM reports as a stand-alone report. We are proposing language that requires sources that fail to meet an applicable standard at any time to report the information concerning such events in the semi-annual periodic report already required under this rule. We are proposing that the report must contain the number, date, time, duration, and the cause of such events (including unknown cause, if applicable), a list of the affected source or equipment, an estimate of the volume of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing this requirement to ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

We will no longer require owners or operators to determine whether actions taken to correct a malfunction are consistent with an SSM plan, because plans would no longer be required. The proposed amendments therefore eliminate the cross reference to 40 CFR 63.10(d)(5)(i) that contains the description of the previously required SSM report format and submittal schedule from this section. These specifications are no longer necessary because the events will be reported in otherwise required reports with similar format and submittal requirements.

We note that reporting a failure to meet an applicable standard could include malfunction events for which a source may choose to submit documentation to support an assertion of affirmative defense, consistent with the affirmative defense provisions we are proposing today. If a source provides all the material proposed in 40 CFR 63.1100(h) and 63.1400(l) to support an affirmative defense, the source need not submit the same information two times in the same report. While assertion of an affirmative defense is not mandatory and would occur only if a source chooses to take advantage of the affirmative defense, the proposed affirmative defense also requires additional reporting that goes beyond these routine requirements related to a failure to meet an applicable standard for a reason other than a malfunction.

For the APR MACT standards, we are proposing to revise the General Provisions applicability table (Table 1 to Subpart OOO) entry for 40 CFR 63.10(d)(5)(ii) by changing the ''yes'' in the second column to a ''no.'' 40 CFR 63.10(d)(5)(ii) describes an immediate report for startups, shutdown, and malfunctions when a source failed to meet an applicable standard but did not follow the SSM plan. We will no longer require owners or operators to report when actions taken during a startup, shutdown, or malfunction were not consistent with an SSM plan, because plans would no longer be required.

8. Pressure Relief Devices

For the AMF, PC and APR MACT standards, we are proposing, as part of our revisions to address periods of SSM in response to the 2008 *Sierra Club* ruling, to specify that PRD in organic HAP service may not release to the atmosphere. To ensure compliance with this requirement, we are further proposing to require facility owners or operators in these three source categories to employ monitoring capable of (1) immediately alerting an operator when there is an atmospheric release from a PRD in organic HAP service and (2) recording the time and duration of each pressure release. Owners or operators would be required to report any pressure release and an estimate of the amount of organic HAP released to the atmosphere with the next periodic report.

We believe that PRD releases that are vented directly to the atmosphere are caused by malfunctions. Emissions vented to the atmosphere by PRDs may contain HAP that are otherwise regulated under the MACT standards. In *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008), the court determined that standards under CAA section 112(d) must provide for compliance at all times. Therefore, the proposed rule revisions provide that a pressure release from a PRD in organic HAP service, unless routed to a control device or process, is a violation of the emission standard. As with any malfunction event, an owner or operator may assert an affirmative defense against civil penalties for a malfunction causing a

pressure release from a PRD in organic HAP service to the atmosphere.

Pressure release events from PRDs in organic HAP service to the atmosphere have the potential to emit large quantities of HAP. Where a release occurs, it is important to identify and mitigate it as quickly as possible. Therefore, we are proposing to require that sources monitor PRDs in organic HAP service using a device or system that is capable of identifying and recording the time and duration of each pressure release and of notifying operators that a release has occurred. For purposes of estimating the costs of this requirement, we assumed that operators would install electronic indicators on each PRD in organic HAP service that vents to the atmosphere to identify and record the time and duration of each pressure release. However, owners or operators could use a range of methods to satisfy these requirements, including the use of a parameter monitoring system that may already have been in place on the process operating pressure that is sufficient to notify operators immediately that a pressure release is occurring, as well as recording the time and duration of that release.

Based on our cost assumptions that the most expensive approach would be used, the nationwide capital cost of installing these monitors is $37,000, $400,000 and $51,000 for the AMF, APR and PC source categories, respectively. The total annualized cost of installing and operating these monitors is $5,300, $56,000 and $7,200 per year for the AMF, APR and PC source categories, respectively.

B. Electronic Reporting

In this proposal, the EPA is describing a process to increase the ease and efficiency of performance test data submittal while improving data accessibility. Specifically, the EPA is proposing that owners or operators of AMF, APR and PC facilities submit electronic copies of required performance test and performance evaluation reports by direct computer-to-computer electronic transfer using EPA-provided software. These provisions are being proposed in 40 CFR 63.1110(a)(9) (for the AMF and PC MACT standards) and 40 CFR 63.1417(h)(9) (for the APR MACT standards). The direct computer-to-computer electronic transfer is accomplished through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). The Central Data Exchange is EPA's portal for submittal of electronic data. The EPA-provided software is called the Electronic Reporting Tool (ERT) which is used to generate electronic reports of performance tests and evaluations. The ERT generates an electronic report package which will be submitted using CEDRI. The submitted report package will be stored in the CDX archive (the official copy of record) and the EPA's public database called WebFIRE. All stakeholders will have access to all reports and data in WebFIRE and accessing these reports and data will be very straightforward and easy (see the WebFIRE Report Search and Retrieval link at *http://cfpub.epa.gov/webfire/index.cfm?action=fire.searchERTSubmission*). A description and instructions for use of the ERT can be found at *http://www.epa.gov/ttn/chief/ert/index.html* and CEDRI can be accessed through the CDX Web site (*www.epa.gov/cdx*). A description of the WebFIRE database is available at: *http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main*.

The proposal to submit performance test data electronically to the EPA applies only to those performance tests (and/or performance evaluations) conducted using test methods that are supported by the ERT. The ERT supports most of the commonly used EPA reference methods. A listing of the pollutants and test methods supported by the ERT is available at: *http://www.epa.gov/ttn/chief/ert/index.html*.

We believe that industry would benefit from this proposed approach to electronic data submittal. Specifically, by using this approach, industry will save time in the performance test submittal process. Additionally, the standardized format that the ERT uses allows sources to create a more complete test report resulting in less time spent on data backfilling if a source failed to include all data elements required to be submitted. Also, through this proposal, industry may only need to submit a report once to meet the requirements of the applicable subpart because stakeholders can readily access these reports from the WebFIRE database. This also benefits industry by cutting back on recordkeeping costs as the performance test reports that are submitted to the EPA using CEDRI are no longer required to be retained in hard copy, thereby reducing staff time needed to coordinate these records.

Since the EPA will already have performance test data in hand, another benefit to industry is that fewer or less substantial data collection requests in conjunction with prospective required residual risk assessments or technology reviews will be needed. This would result in a decrease in staff time needed to respond to data collection requests.

State, local and tribal air pollution control agencies (S/L/Ts) may also benefit from having electronic versions of the reports they are now receiving. For example, S/L/Ts may be able to conduct a more streamlined and accurate review of electronic data submitted to them. For example, the ERT would allow for an electronic review process, rather than a manual data assessment, therefore, making review and evaluation of the source provided data and calculations easier and more efficient. In addition, the public stands to benefit from electronic reporting of emissions data because the electronic data will be easier for the public to access. How the air emissions data are collected, accessed and reviewed will be more transparent for all stakeholders.

One major advantage of the proposed submittal of performance test data through the ERT is a standardized method to compile and store much of the documentation required to be reported by this rule. The ERT clearly states what testing information would be required by the test method and has the ability to house additional data elements that might be required by a delegated authority.

In addition, the EPA must have performance test data to conduct effective reviews of CAA sections 112 standards, as well as for many other purposes, including compliance determinations, emission factor development and annual emission rate determinations. In conducting these required reviews, the EPA has found it ineffective and time consuming, not only for us, but also for regulatory agencies and source owners or operators, to locate, collect and submit performance test data. In recent years, stack testing firms have typically collected performance test data in electronic format, making it possible to move to an electronic data submittal system that would increase the ease and efficiency of data submittal and improve data accessibility.

A common complaint heard from industry and regulators is that emission factors are outdated or not representative of a particular source category. With timely receipt and incorporation of data from most performance tests, the EPA would be able to ensure that emission factors, when updated, represent the most current range of operational practices. Finally, another benefit of the proposed data submittal to WebFIRE electronically is that these data would greatly improve the overall quality of

existing and new emissions factors by supplementing the pool of emissions test data for establishing emissions factors.

In summary, in addition to supporting regulation development, control strategy development and other air pollution control activities, having an electronic database populated with performance test data would save industry, state, local, and tribal agencies and the EPA significant time, money and effort while also improving the quality of emission inventories and air quality regulations.

C. Open-Ended Valves and Lines

The AMF MACT standards at 40 CFR 63.1103(b)(3) and the PC MACT standards at 40 CFR 63.1103(d)(3) require an owner or operator to control emissions from equipment leaks according to the requirements of either 40 CFR part 63, subpart TT or subpart UU. The APR MACT standards at 40 CFR 63.1410 require that equipment leaks be controlled according to subpart UU and do not provide an option to comply with subpart TT. For open-ended valves and lines, both subpart TT and subpart UU require that the open end be equipped with a cap, blind flange, plug or second valve that ''shall seal the open end at all times.'' However, neither subpart (nor the AMF, APR or PC MACT standards) define ''seal'' or explain in practical and enforceable terms what constitutes a sealed open-ended valve or line. This has led to uncertainty on the part of the owner or operator as to whether compliance is being achieved. Inspections under the EPA's Air Toxics LDAR initiative have provided evidence that while certain open-ended lines may be equipped with a cap, blind flange, plug or second valve, they are not operating in a ''sealed'' manner as the EPA interprets that term.

In response to this uncertainty, we are proposing to amend 40 CFR 63.1103(b)(2) (for the AMF MACT standards), 40 CFR 63.1402(b) (for the APR MACT standards) and 40 CFR 63.1103(d)(2) (for the PC MACT standards) to add a definition of ''seal.'' This proposed definition clarifies that, for the purpose of complying with the requirements of 40 CFR 63.1033(b) of subpart UU, open-ended valves and lines are ''sealed'' by the cap, blind flange, plug, or second valve when there are no detectable emissions from the open-ended valve or line at or above an instrument reading of 500 ppm. We solicit comments on this approach to reducing the compliance uncertainty associated with open-ended valves and lines and our proposed definition of ''seal.''

D. Flare Performance

In addition to our proposed actions under CAA sections 112(d) and (f) for the AMF, PC and APR source categories, we are seeking comments on the performance of flares to control HAP emissions in these source categories, as governed by the EPA's General Provisions at 40 CFR 63.11(b). This is an issue that the EPA has recently begun studying. In April 2012, the EPA conducted an external peer review of a draft technical report, ''Parameters for Properly Designed and Operated Flares'' (*http://www.epa.gov/ttn/atw/flare/2012flaretechreport.pdf*) (''draft flare technical report''). In this report, the EPA evaluated test data and identified a variety of parameters that may affect flare performance and that could be monitored to help assure good combustion efficiency. Based on feedback received from the external ad-hoc peer review panel, the EPA has since undertaken an initiative to go back and re-evaluate parameters that may affect overall flare performance at source categories known to use flares for controlling HAP emissions (e.g., petroleum refining).

Currently, AMF, PC and APR sources may choose to use a flare to reduce emissions from storage vessels and process vents to comply with the MACT standards, but are not required to do so. Our records indicate the use of flares in only the APR and PC source categories. However, we do not have specific flare performance data for the AMF, PC and APR source categories. Therefore, we are not at this time prepared to propose any changes to the currently applicable regulations pertaining to the performance of flares in the AMF, PC and APR source categories, but we may revisit the issue in future notices. We solicit comments and additional information on flare performance specifically for the AMF, PC and APR source categories. Examples of information requested for these source categories include: Prevalence of flaring; number and types of flares used; waste gas characteristics such as flow rate, composition and heat content; assist gas characteristics such as target assist gas to waste gas ratios and minimum assist gas flow rates; use of flare gas recovery and other flare minimization practices; and existing flare monitoring systems.

VIII. What compliance dates are we proposing?

Under CAA section 112(d), for the three source categories being addressed in this action, the proposed compliance date for new and existing sources for the revised SSM requirements (other than PRD monitoring for existing sources) and electronic reporting requirements is the effective date of the final amendments. We are proposing these compliance dates because these requirements should be immediately implementable by the facilities upon the next occurrence of a malfunction or the performance of a performance test that is required to be submitted to the ERT. Available information suggests that the facilities should already be able to comply with the existing standards during periods of startup and shutdown.

Under CAA section 112(i)(3), for existing sources subject to the AMF, APR and PC MACT standards, the proposed compliance date for PRD monitoring is 3 years from the effective date of the final amendments. This time is needed regardless of whether an owner or operator of a facility chooses to comply with the PRD monitoring provisions by installing PRD release indicator systems and alarms, employing parameter monitoring, or by routing releases to a control device. This time period will allow facilities to research equipment and vendors, purchase, install, test and properly operate any necessary equipment by the compliance date. For new sources subject to the AMF, APR and PC MACT standards, the proposed compliance date for PRD monitoring, along with the other SSM-related revisions, is the effective date of the final amendments.

For both new and existing sources subject to the AMF, APR and PC MACT standards, the proposed compliance date for the operating and pressure release management requirements for PRDs, along with the other SSM-related revisions, is the effective date of the final amendments. We are proposing these compliance dates because these requirements are the same as those contained in 40 CFR part 63, subpart UU, with which facilities are already complying as part of the existing MACT standards.

For the one existing source subject to the AMF MACT standards, the proposed compliance date for the new solution polymerization spinning line requirements is the effective date of the final amendments. We believe this facility is already complying with these requirements and no additional time to come into compliance is warranted.

Under CAA section 112(i)(3), for existing sources subject to the APR MACT standards, the proposed compliance date for the new MACT standards applicable to continuous process vents is 3 years from the effective date of the final amendments. This time period will allow facilities to purchase, install and test any necessary

equipment. For existing APR sources subject to the new MACT standards applicable to storage vessels, the proposed compliance date is the effective date of the final amendments. As we stated previously, our analysis indicates that all storage vessels are currently controlled to the proposed level of control and no additional time to come into compliance is warranted. For new sources subject to the APR MACT standards, the proposed compliance date for the revised storage vessel requirements is the effective date of the final amendments.

Under CAA section 112(i)(3), for existing sources subject to the AMF and PC MACT standards, the proposed compliance date for the revised equipment leak standards is 1 year from the effective date of the final amendments. Our data indicate that the one AMF facility and some of the PC facilities are currently complying with subpart TT requirements and will need time to purchase, install and test any necessary equipment and modify their existing LDAR programs. For new sources subject to AMF and PC MACT standards, the proposed compliance date for the revised equipment leak standards is the effective date of the final amendments.

IX. Summary of Cost, Environmental and Economic Impacts

A. What are the affected sources?

We anticipate that each facility in these three source categories will be affected by these proposed amendments. We estimate there is one existing facility subject to the AMF MACT standards, 18 existing facilities subject to the APR MACT standards and 4 existing facilities subject to the PC MACT standards. We do not know of any new facilities that are expected to be constructed in the foreseeable future in any of these source categories. Therefore, our impact analysis is focused on the existing sources affected by the MACT standards for these three source categories.

B. What are the air quality impacts?

1. AMF Source Category

For equipment leaks, we are proposing to eliminate the option of complying with subpart TT and allow facilities to comply with only subpart UU, except for connectors in gas and vapor service and in light liquid service. We are proposing to retain the option to comply with subpart TT or subpart UU for these components. We estimate the HAP emission reductions for the one facility in the AMF source category to be 0.2 tpy.

We are proposing an emission rate for spinning lines that use spin dope produced from a solution polymerization process equal to the MACT floor for this facility, which will not result in any quantifiable emission reductions.

For the proposed revisions to the MACT standards regarding SSM, including monitoring of PRDs in organic HAP service, while these changes may result in fewer emissions during these periods or less frequent periods of startup, shutdown or malfunction, these possible emission reductions are difficult to quantify and are not included in our assessment of air quality impacts.

Therefore, the total HAP emission reductions for the proposed standards for the AMF source category are 0.2 tpy.

2. APR Source Category

Two facilities in the APR source category have uncontrolled continuous process vents. We are proposing standards that will require 85 percent control of HAP emissions from these process vents. The estimated HAP emission reductions for these two facilities are 20.1 tpy.

We are proposing to implement emission standards for storage vessels at existing facilities. However, our data indicate that all storage vessels subject to the proposed standards are already in compliance, and no quantifiable emission reductions are expected.

For the proposed revisions to the MACT standards regarding SSM, including monitoring of PRDs in organic HAP service, while these changes may result in fewer emissions during these periods or less frequent periods of startup, shutdown or malfunction, these possible emission reductions are difficult to quantify and are not included in our assessment of air quality impacts.

Therefore, the total HAP emission reductions for the proposed standards for the APR source category are 20.1 tpy.

3. PC Source Category

For equipment leaks, we are proposing to eliminate the option of complying with subpart TT and allow facilities to comply with only subpart UU, except for connectors in gas and vapor service and in light liquid service. We are proposing to retain the option to comply with subpart TT or subpart UU for these components. We estimated the HAP emission reductions for the four facilities in the PC source category to be 2.1 tpy.

For the proposed revisions to the MACT standards regarding SSM, including installation and operation of monitors on PRDs, while these changes may result in fewer emissions during these periods or less frequent periods of startup, shutdown or malfunction, these possible emission reductions are difficult to quantify and are not included in our assessment of air quality impacts.

Therefore, the total HAP emission reductions for the proposed standards for the PC source category are 2.1 tpy.

C. What are the cost impacts?

1. AMF Source Category

For equipment leaks, we are proposing to eliminate the option of complying with subpart TT and allow facilities to comply with only subpart UU, except for connectors in gas and vapor service and in light liquid service. We are proposing to retain the option to comply with subpart TT or subpart UU for these components. We estimated the capital costs for the one facility in the AMF source category to be $1,400 and the annualized costs to be $220.

We are proposing an emission rate for spinning lines that use spin dope produced from a solution polymerization process equal to the MACT floor for this facility. Thus, we do not expect any quantifiable capital or annual costs for this proposed standard.

For the proposed requirements to install and operate monitors on PRDs, we estimate the capital costs to be $37,000 and the annualized costs to be $5,300.

Therefore, the total capital costs for the AMF source category are approximately $38,000, and the total annualized costs are approximately $6,000.

2. APR Source Category

Two facilities in the APR source category have uncontrolled continuous process vents. We are proposing standards that will require 85 percent control of HAP emissions from these process vents. The estimated capital costs for these two facilities are $1.1 million and the annualized costs are $340,000.

We are proposing to implement emission standards for storage vessels at existing facilities. However, our data indicate that all storage vessels subject to the proposed standards are already in compliance, and no capital or annual costs are expected.

For the proposed requirements to install and operate monitors on PRDs, we estimate the capital costs to be $400,000 and the annualized costs to be $56,000.

Therefore, the total capital costs for the APR source category are

approximately $1.5 million, and the total annualized costs are approximately $400,000.

3. PC Source Category

For equipment leaks, we are proposing to eliminate the option of complying with subpart TT and allow facilities to comply with only subpart UU, except for connectors in gas and vapor service and in light liquid service. We are proposing to retain the option to comply with subpart TT or subpart UU for these components. We estimated the capital costs to be $16,000 and the annualized costs to be $2,200.

For the proposed requirements to install and operate monitors on PRDs, we estimate the capital costs to be $51,000 and the annualized costs to be $7,200.

Therefore, the total capital costs for the PC source category are approximately $67,000, and the total annualized costs are approximately $9,400.

D. What are the economic impacts?

We estimate that there will be no more than a 0.5 percent price change and a similar reduction in output associated with the proposal. This is based on the costs of the rule and responsiveness of producers and consumers based on supply and demand elasticities for the industries affected by this proposal. The impacts to affected firms will be low because the annual compliance costs are quite small when compared to the annual revenues for the affected parent firms (much less than 1 percent for each). The impacts to affected consumers should also be quite small. Thus, there will not be any significant impacts on affected firms and their consumers as a result of this proposal.

E. What are the benefits?

Because this rulemaking is not likely to have an annual effect on the economy of $100 million or more, we have not conducted a regulatory impact analysis or a benefits analysis. However, the estimated reductions in HAP emissions that will be achieved by this proposed rule will provide benefits to public health. The proposed standards will result in significant reductions in the actual and allowable emissions of HAP and will reduce the actual and potential cancer risks and non-cancer health effects due to emissions of HAP from these source categories. We have not quantified the monetary benefits associated with these reductions.

X. Request for Comments

We solicit comments on all aspects of this proposed action. In addition to general comments on this proposed action, we are also interested in additional data that may improve the risk assessments and other analyses. We are specifically interested in receiving any improvements to the data used in the site-specific emissions profiles used for risk modeling. Such data should include supporting documentation in sufficient detail to allow characterization of the quality and representativeness of the data or information. Section XI of this preamble provides more information on submitting data.

XI. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and demographic analyses and instructions are available on the RTR Web page at: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* The data files include detailed information for each HAP emissions release point for the facilities in the source category.

If you believe that the data are not representative or are inaccurate, please identify the data in question, provide your reason for concern and provide any ''improved'' data that you have, if available. When you submit data, we request that you provide documentation of the basis for the revised values to support your suggested changes. To submit comments on the data downloaded from the RTR page, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information.

2. Fill in the commenter information fields for each suggested revision (i.e., commenter name, commenter organization, commenter email address, commenter phone number and revision comments).

3. Gather documentation for any suggested emissions revisions (e.g., performance test reports, material balance calculations, etc.).

4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID Number EPA–HQ–OAR–2012–0133 (through one of the methods described in the **ADDRESSES** section of this preamble).

5. If you are providing comments on a single facility or multiple facilities, you need only submit one file for all facilities. The file should contain all suggested changes for all sources at that facility. We request that all data revision comments be submitted in the form of updated Microsoft® Excel files that are generated by the Microsoft® Access file. These files are provided on the RTR Web page at: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.*

XII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a ''significant regulatory action'' under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011).

B. Paperwork Reduction Act

The information collection requirements in this rule have been submitted for approval to OMB under the *Paperwork Reduction Act,* 44 U.S.C. 3501, *et seq.* The Information Collection Request (ICR) documents prepared by the EPA for these rules have been assigned EPA ICR number 1871.07 (AMF and PC MACT standards) and 1869.08 (APR MACT standards).

The information requirements are based on notification, recordkeeping and reporting requirements in the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all operators subject to national emissions standards. These recordkeeping and reporting requirements are specifically authorized by CAA section 114 (42 U.S.C. 7414). All information submitted to the EPA pursuant to the recordkeeping and reporting requirements for which a claim of confidentiality is made is safeguarded according to agency policies set forth in 40 CFR part 2, subpart B.

To provide the public with an estimate of the relative magnitude of the burden associated with an assertion of the affirmative defense position adopted by a source, the EPA has provided administrative adjustments to this ICR to show what the notification, recordkeeping and reporting requirements associated with the assertion of the affirmative defense might entail. The EPA's estimate for the required notification, reports and records for any individual incident, including the root cause analysis, totals $2,375 annually per MACT standard and is based on the time and effort required of a source to review relevant data, interview plant employees and document the events surrounding a malfunction that has caused a violation

of an emissions limit. The estimate also includes time to produce and retain the record and reports for submission to the EPA. The EPA provides this illustrative estimate of this burden because these costs are only incurred if there has been a violation and a source chooses to take advantage of the affirmative defense.

Given the variety of circumstances under which malfunctions could occur, as well as differences among sources' operation and maintenance practices, we cannot reliably predict the severity and frequency of malfunction-related excess emissions events for a particular source. It is important to note that the EPA has no basis currently for estimating the number of malfunctions that would qualify for an affirmative defense. Current historical records would be an inappropriate basis, as source owners or operators previously operated their facilities in recognition that they were exempt from the requirement to comply with emissions standards during malfunctions. Of the number of excess emissions events reported by source operators, only a small number would be expected to result from a malfunction (based on the definition above), and only a subset of excess emissions caused by malfunctions would result in the source choosing to assert the affirmative defense. Thus, we believe the number of instances in which source operators might be expected to avail themselves of the affirmative defense will be extremely small. We expect to gather information on such events in the future and will revise this estimate as better information becomes available.

1. Acrylic and Modacrylic Fibers Production MACT Standards

The ICR document prepared by the EPA for the amendments to the AMF MACT standards we are proposing today has been assigned EPA ICR number 1871.07. Burden changes associated with these proposed amendments would result from new recordkeeping and reporting requirements associated with requirements for spinning lines that use spin dope produced from a solution polymerization process, the PRD monitoring requirements and affirmative defense provisions for all facilities subject to the AMF MACT standards.

We estimate 1 regulated facility is currently subject to the AMF requirements in subpart YY. The annual monitoring, reporting and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the standards) for these amendments to subpart YY is estimated to be 54 labor hours at a cost of $3,000 per year. There is no estimated change in annual burden to the federal government for these amendments.

2. Amino/Phenolic Resins Production MACT Standards

The ICR document prepared by the EPA for the amendments to the APR MACT standards we are proposing today has been assigned EPA ICR number 1869.08. Burden changes associated with these proposed amendments would result from new recordkeeping and reporting requirements associated with the PRD monitoring requirements and affirmative defense provisions for all facilities subject to the APR MACT standards. In addition, we estimate that two facilities will be subject to recordkeeping, reporting and monitoring requirements associated with the control of certain continuous process vents.

We estimate 18 regulated facilities are currently subject to subpart OOO. The annual monitoring, reporting and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the standards) for these amendments to subpart OOO is estimated to be 1,178 labor hours at a cost of $66,500 per year. There is no estimated change in annual burden to the federal government for these amendments.

3. Polycarbonate Production MACT Standards

The ICR document prepared by the EPA for the amendments to the PC MACT standards we are proposing today has been assigned EPA ICR number 1871.07. Burden changes associated with these proposed amendments would result from new recordkeeping and reporting requirements associated with the PRD monitoring requirements and affirmative defense provisions for all facilities subject to the MACT standards.

We estimate 4 regulated facilities are currently subject to the PC requirements in subpart YY. The annual monitoring, reporting and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the standards) for these amendments to subpart YY is estimated to be 216 labor hours at a cost of $12,000 per year. There is no estimated change in annual burden to the federal government for these amendments.

Burden is defined at 5 CFR 1320.3(b). An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9.

To comment on the agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden, the EPA has established a public docket for this rule, which includes this ICR, under Docket ID number EPA–HQ–OAR–2012–0133. Submit any comments related to the ICR to the EPA and OMB. See the **ADDRESSES** section at the beginning of this proposed rule for where to submit comments to the EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after January 9, 2014, a comment to OMB is best assured of having its full effect if OMB receives it by February 10, 2014. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations and small governmental jurisdictions.

For purposes of assessing the impacts of this rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field. According to the SBA small business standards definitions, for the APR source category, which has the NAICS code of 325211 (i.e., Plastics Material and Resin Manufacturing), the SBA small business size standard is 750 employees. For the PC source category, which has the NAICS code of 325211 (i.e., Plastics Material and Resin Manufacturing), the SBA small business size standard is 750 employees. For the AMF source category, which has the

NAICS code of 325222 (i.e., Noncellulosic Organic Fiber Manufacturing), the SBA small business size standard is 1,000 employees.

After considering the economic impacts of this proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This proposed rule will not impose any requirements on small entities. There are no affected small businesses in the APR, AMF and PC source categories. All of the companies affected by this rule are generally large integrated corporations that are not considered to be small entities per the definitions provided in this section.

We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

This rule does not contain a federal mandate that may result in expenditures of $100 million or more for state, local and tribal governments, in aggregate, or the private sector in any one year. The total annualized cost of this rule is estimated to be no more than $420,000 in any one year. Thus, this proposed rule is not subject to the requirements of sections 202 or 205 of the UMRA.

This rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments because it contains no requirements that apply to such governments nor does it impose obligations upon them.

E. Executive Order 13132: Federalism

This proposed rule does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This action will not impose substantial direct compliance costs on state or local governments, nor will it preempt state law, and none of the facilities subject to this action are owned or operated by state or local governments. Thus, Executive Order 13132 does not apply to this proposed rule.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and state and local governments, the EPA specifically solicits comment on this proposed rule from state and local officials.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This proposed rule does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). There are no AMF, PC or APR facilities owned or operated by Indian tribal governments. Thus, Executive Order 13175 does not apply to this action.

The EPA specifically solicits additional comment on this proposed action from tribal officials.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action increases the level of environmental protection for all affected populations and would not cause increases in emissions or emissions-related health risks. The EPA's risk assessments (included in the docket for this proposed rule) demonstrate that the existing regulations are associated with an acceptable level of risk and provide an ample margin of safety to protect public health and prevent adverse environmental effects.

The public is invited to submit comments or identify peer-reviewed studies and data that assess effects of early life exposure to HAP emitted by AMF, PC or APR production facilities.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs the EPA to use voluntary consensus standards (VCS) in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. VCS are technical standards (e.g., materials specifications, test methods, sampling procedures and business practices) that are developed or adopted by VCS bodies. NTTAA directs the EPA to provide Congress, through OMB, explanations when the agency decides not to use available and applicable VCS.

This proposed rulemaking does not involve new technical standards. Therefore the EPA did not consider the use of any VCS.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies and activities on minority populations and low-income populations in the United States.

The EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority, low income or indigenous populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority, low income or indigenous populations.

To gain a better understanding of the source categories and near source populations, the EPA conducted a proximity analysis of the facilities in the APR and PC source categories to identify any overrepresentation of minority, low income or indigenous populations. This analysis only gives some indication of the prevalence of sub-populations that may be exposed to air pollution from the sources; it does not identify the demographic characteristics of the most highly affected individuals or communities, nor does it quantify the level of risk faced by those individuals or communities. More information on the source categories' risk can be found in sections V and VI of this preamble. The complete demographic analysis results and the details concerning their development are presented in the memorandum entitled *Environmental Justice Review: Amino/Phenolic Resins, Acrylic and Modacrylic Fibers Production, and Polycarbonate Production,* available in the docket for

this action (Docket ID No. EPA–HQ–OAR–2012–0133).

For the APR source category, the proximity analysis revealed that ''African American'' and ''Below the Poverty Line'' demographic categories are above 20 percent of their corresponding national averages. The ratio of African Americans living within 3 miles of any source affected by this rule is 62 percent higher than the national average (21 percent versus 13 percent) and the ratio of people living below the poverty line living within 3 miles of any source affected by this rule is 43 percent higher than the national average (20 percent versus 14 percent). However, as noted previously, risks from this source category were found to be acceptable for all populations.

For the PC source category, the proximity analysis revealed that several demographic categories are above 20 percent of their corresponding national averages, including ''Other or Multiracial,'' ''Hispanic,'' ''Age 0–4,'' ''Age 0–17,'' and ''No High School Diploma.'' Within 3 miles of any source affected by this rule, the ratio of Other or Multiracial people living is 21 percent higher than the national average (17 percent versus 14 percent), the ratio of Hispanic people is 135 percent higher than the national average (40 percent versus 17 percent), the ratio of people aged 0–4 is 29 percent higher than the national average (9 percent versus 7 percent), the ratio of people aged 0–17 is 25 percent higher than the national average (30 percent versus 24 percent), and the ratio of people with no high school diploma is 40 percent higher than the national average (14 percent versus 10 percent). However, as noted previously, risks from this source category were found to be acceptable for all populations. Additionally, the proposed changes to the standard increase the level of environmental protection for all affected populations by reducing emissions from equipment leaks.

List of Subjects for 40 CFR Part 63

Environmental protection, Administrative practice and procedures, Air pollution control, Hazardous substances, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated: December 11, 2013.

Gina McCarthy,

Administrator.

For the reasons stated in the preamble, the Environmental Protection Agency (EPA) proposes to amend Title 40, chapter I, of the Code of Federal Regulations (CFR) as follows:

PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

■ 1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

Subpart YY—National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards

■ 2. Section 63.1100 is amended by:

■ a. Revising the last sentence of paragraph (d) introductory text; and

■ b. Adding paragraph (h).

The revisions and additions read as follows:

§ 63.1100 Applicability.

* * * * *

(d) * * * Paragraphs (d)(3), (4), and (5) of this section discuss compliance for those process units operated as flexible operation units.

* * * * *

(h) *Affirmative defense for violation of emission standards during malfunction.* In response to an action to enforce the standards set forth in this subpart, the owner or operator of an acrylic and modacrylic fiber production affected source or polycarbonate production affected source may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined at 40 CFR 63.2. Appropriate penalties may be assessed if the owner or operator fails to meet their burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(1) *Assertion of affirmative defense.* To establish the affirmative defense in any action to enforce such a standard, the owner or operator must timely meet the reporting requirements in paragraph (h)(2) of this section, and must prove by a preponderance of evidence that:

(i) The violation:

(A) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner; and

(B) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(C) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(D) Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(ii) Repairs were made as expeditiously as possible when a violation occurred; and

(iii) The frequency, amount, and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and

(iv) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(v) All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment, and human health; and

(vi) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

(vii) All of the actions in response to the violation were documented by properly signed, contemporaneous operating logs; and

(viii) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and

(ix) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

(2) *Report.* The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator, with all necessary supporting documentation, that explains how it has met the requirements set forth in paragraph (h)(1) of this section. This affirmative defense report shall be included in the first periodic compliance report, deviation report, or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance report, deviation report, or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance report, deviation report, or excess emission report due after the initial occurrence of the violation of the relevant standard.

■ 3. Section 63.1101 is amended by adding in alphabetical order the terms ''Affirmative defense,'' ''Pressure

release,'' and ''Pressure relief device or valve'' to read as follows:

§ 63.1101 Definitions.

Affirmative defense means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

* * * * *

Pressure release means the emission of materials resulting from the system pressure being greater than the set pressure of the pressure relief device. This release can be one release or a series of releases over a short time period due to a malfunction in the process.

Pressure relief device or valve means a safety device used to prevent operating pressures from exceeding the maximum allowable working pressure of the process equipment. A common pressure relief device is a spring-loaded pressure relief valve. Devices that are actuated either by a pressure of less than or equal to 2.5 pounds per square inch gauge or by a vacuum are not pressure relief devices.

* * * * *

■ 4. Section 63.1102 is amended by:
■ a. Revising the first sentence of paragraph (a) introductory text; and
■ b. Adding paragraph (b).

The revisions and additions read as follows:

§ 63.1102 Compliance schedule.

(a) * * * Affected sources, as defined in § 63.1103(a)(1)(i) for acetyl resins production, § 63.1103(b)(1)(i) for acrylic and modacrylic fiber production, § 63.1103(c)(1)(i) for hydrogen fluoride production, § 63.1103(d)(1)(i) for polycarbonate production, § 63.1103(e)(1)(i) for ethylene production, § 63.1103(f)(1)(i) for carbon black production, § 63.1103(g)(1)(i) for cyanide chemicals manufacturing, or § 63.1103(h)(1)(i) for spandex production shall comply with the appropriate provisions of this subpart and the subparts referenced by this subpart according to the schedule in paragraph (a)(1) or (2) of this section, as appropriate, except as provided in paragraph (b) of this section. * * *

* * * * *

(b) All acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources that commenced construction or reconstruction on or before January 9, 2014, shall be in compliance with the pressure relief device monitoring requirements of § 63.1107(e)(3) upon initial startup or 3 years after the effective date of the final amendments, whichever is later, and the equipment leaks requirements of 40 CFR part 63, subpart UU upon initial startup or 1 year after the effective date of the final amendments, whichever is later. New acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources that commence construction or reconstruction after January 9, 2014, shall be in compliance with the pressure relief device monitoring requirements of § 63.1107(e)(3) upon initial startup or by the effective date of the final amendments, whichever is later.

* * * * *

■ 5. Section 63.1103 is amended by:
■ a. Revising paragraph (b)(1)(ii);
■ b. In paragraph (b)(2), adding in alphabetical order the term ''Seal'';
■ c. In paragraph (b)(3)(i), under Table 2, revising entries 4, 5, 6, and 7 and adding entry 11;
■ d. In paragraph (b)(3)(ii), under Table 3, revising entry 3 and adding entry 4;
■ e. Revising paragraph (d)(1)(ii);
■ f. In paragraph (d)(2), adding in alphabetical order the term ''Seal''; and
■ g. In paragraph (d)(3), under Table 5, revising entry 6 and adding entry 10, and under Table 6, revising entry 5 and adding entry 6.

The revisions and additions read as follows:

§ 63.1103 Source category-specific applicability, definitions, and requirements.

* * * * *

(b) * * *

(1) * * *

(ii) Compliance schedule. The compliance schedule, for affected sources as defined in paragraph (b)(1)(i) of this section, is specified in § 63.1102.

(2) *Definitions.*

* * * * *

Seal means, for the purpose of complying with the requirements of § 63.1033(b), that instrument monitoring of the open-ended valve or line conducted according to the method specified in § 63.1023(b) and, as applicable, § 63.1023(c), indicates no readings of 500 parts per million or greater.

* * * * *

(3) * * *

(i) * * *

TABLE 2 TO § 63.1103(B)(3)(I)—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE AN ACRYLIC AND MODACRYLIC FIBER PRODUCTION EXISTING OR NEW AFFECTED SOURCE AND AM COMPLYING WITH PARAGRAPH (B)(3)(I) OF THIS SECTION?

If you own or operate . . .	And if . . .	Then you must . . .
*	*	*
4. A fiber spinning line that is a new or reconstructed source.	The lines use a spin dope produced from either a suspension polymerization process or solution polymerization process.	a. Reduce acrylonitrile emissions by 85 weight-percent or more. (For example, you may enclose the spinning and washing areas of the spinning line (as specified in paragraph (b)(4) of this section) and vent through a closed vent system and use any combination of control devices meeting the requirements of subpart SS, as specified in § 63.982(a), of this part.); or b. Reduce acrylonitrile emissions from the spinning line to less than or equal to 0.25 kilograms of acrylonitrile per megagram (0.5 pounds of acrylonitrile per ton) of acrylic and modacrylic fiber produced; or c. Reduce the acrylonitrile concentration of the spin dope to less than 100 ppmw.
5. A fiber spinning line that is an existing source.	The spinning line uses a spin dope produced from a solution polymerization process.	Reduce organic HAP emissions from the spinning line to less than or equal to 20 kilograms of organic HAP per megagram (40 pounds of organic HAP per ton) of acrylic and modacrylic fiber produced.
6. A fiber spinning line that is an existing source.	The spinning line uses a spin dope produced from a suspension polymerization process.	a. Reduce the acrylonitrile concentration of the spin dope to less than 100 ppmw [b]; or

TABLE 2 TO § 63.1103(B)(3)(I)—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE AN ACRYLIC AND MODACRYLIC FIBER PRODUCTION EXISTING OR NEW AFFECTED SOURCE AND AM COMPLYING WITH PARAGRAPH (B)(3)(I) OF THIS SECTION?—Continued

If you own or operate . . .	And if . . .	Then you must . . .
		b. Reduce acrylonitrile emissions from the spinning line to less than or equal to 0.25 kilograms of acrylonitrile per megagram of acrylic and modacrylic fiber produced.
7. Equipment as defined under § 63.1101 (with the differences for pressure relief devices described in item 11 below).	It contains or contacts ≥10 weight-percent acrylonitrile,[c] and operates ≥300 hours per year.	For connectors in gas and vapor service and in light liquid service, comply with either § 63.1008 of subpart TT (national emission standards for equipment leaks (control level 1)) of this part, or § 63.1027 of subpart UU (national emission standards for equipment leaks (control level 2)) of this part. For all other applicable equipment, comply with the requirements of subpart UU of this part, except § 63.1030.
* * *	* * *	* * *
11. Pressure relief devices ..	The pressure relief device is in organic HAP service.	Comply with § 63.1107(e).

* * * * * (ii) * * *

TABLE 3 TO § 63.1103(B)(3)(II)—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE AN ACRYLIC AND MODACRYLIC FIBER PRODUCTION EXISTING OR NEW AFFECTED SOURCE AND AM COMPLYING WITH PARAGRAPH (B)(3)(II) OF THIS SECTION?

If you own or operate . . .	Then you must control total organic HAP emissions from the affected source by . . .
* * * *	* * *
3. Equipment as defined under § 63.1101 and it contains or contacts >10 weight-percent acrylonitrile,[a] and operates >300 hours per year (with the differences for pressure relief devices described in item 4 below).	For connectors in gas and vapor service and in light liquid service, comply with either § 63.1008 of subpart TT (national emission standards for equipment leaks (control level 1)) of this part, or § 63.1027 of subpart UU (national emission standards for equipment leaks (control level 2)) of this part. For all other applicable equipment, comply with subpart UU of this part, except § 63.1030.
4. A pressure relief device in organic HAP service	Complying with § 63.1107(e).

* * * * *

(d) * * *

(1) * * *

(ii) Compliance schedule. The compliance schedule, for affected sources as defined in paragraph (d)(1)(i) of this section, is specified in § 63.1102.

(2) * * *

Seal means, for the purpose of complying with the requirements of § 63.1033(b), that instrument monitoring of the open-ended valve or line conducted according to the method specified in § 63.1023(b) and, as applicable, § 63.1023(c), indicates no readings of 500 parts per million or greater.

* * * * *

TABLE 5 TO § 63.1103(D)—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE A POLYCARBONATE PRODUCTION EXISTING AFFECTED SOURCE?

If you own or operate . . .	And if . . .	Then you must . . .
* * *	* * *	* * *
6. Equipment as defined under § 63.1101 (with the differences for pressure relief devices described in item 10 below).	The equipment contains or contacts ≥5 weight-percent total organic HAP,[e] and operates ≥300 hours per year.	For connectors in gas and vapor service and in light liquid service, comply with either § 63.1008 of subpart TT (national emission standards for equipment leaks (control level 1)) of this part, or § 63.1027 of subpart UU (national emission standards for equipment leaks (control level 2)) of this part. For all other applicable equipment, comply with the requirements of subpart UU of this part, except § 63.1030.
* * *	* * *	* * *
10. Pressure relief devices ..	The pressure relief device is in organic HAP service.	Comply with § 63.1107(e).

* * * * *

TABLE 6 TO § 63.1103(D)—WHAT ARE MY REQUIREMENTS IF I OWN OR OPERATE A POLYCARBONATE PRODUCTION NEW AFFECTED SOURCE?

If you own or operate . . .	And if . . .	Then you must . . .
*	*	*
5. Equipment as defined under § 63.1101 (with the differences for pressure relief devices described in item 6 below).	The equipment contains or contacts ≥5 weight-percent total organic HAP,[e] and operates ≥300 hours per year.	For connectors in gas and vapor service and in light liquid service, comply with either § 63.1008 of subpart TT (national emission standards for equipment leaks (control level 1)) of this part, or § 63.1027 of subpart UU ((national emission standards for equipment leaks (control level 2)) of this part. For all other applicable equipment, comply with the requirements of subpart UU of this part, except § 63.1030.
6. Pressure relief devices	The pressure relief device is in organic HAP service.	Comply with § 63.1107(e).

* * * * *

■ 6. Section 63.1104 is amended by revising paragraph (c) to read as follows:

§ 63.1104 Process vents from continuous unit operations: applicability assessment procedures and methods.

* * * * *

(c) *Applicability assessment requirement.* The TOC or organic HAP concentrations, process vent volumetric flow rates, process vent heating values, process vent TOC or organic HAP emission rates, halogenated process vent determinations, process vent TRE index values, and engineering assessments for process vent control applicability assessment requirements are to be determined during maximum representative operating conditions for the process, except as provided in paragraph (d) of this section, or unless the Administrator specifies or approves alternate operating conditions. For acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources, operations during periods of malfunction shall not constitute representative conditions for the purpose of an applicability test. For all other affected sources, operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of an applicability test.

* * * * *

■ 7. Section 63.1107 is amended by:
■ a. Revising the section heading; and
■ b. Adding paragraphs (e), (f) and (g).

The revisions and additions read as follows:

§ 63.1107 Equipment leaks.

* * * * *

(e) *Requirements for pressure relief devices.* For acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources, except as specified in paragraph (e)(4) of this section, the owner or operator must comply with the requirements specified in paragraphs (e)(1) and (2) of this section for pressure relief devices in organic HAP gas or vapor service. Except as specified in paragraph (e)(4) of this section, the owner or operator of an acrylic and modacrylic fiber production affected source or polycarbonate production affected source must also comply with the requirements specified in paragraph (e)(3) of this section for all pressure relief devices in organic HAP service.

(1) *Operating requirements.* Except during a pressure release event, operate each pressure relief device in organic HAP gas or vapor service with an instrument reading of less than 500 ppm above background as detected by Method 21 of 40 CFR part 60, appendix A.

(2) *Pressure release requirements.* For pressure relief devices in organic HAP gas or vapor service, comply with paragraph (e)(2)(i) or (ii) of this section, as applicable.

(i) If the pressure relief device does not consist of or include a rupture disk, conduct instrument monitoring, as detected by Method 21 of 40 CFR part 60, appendix A, no later than 5 calendar days after the pressure relief device returns to organic HAP service following a pressure release to verify that the pressure relief device is operating with an instrument reading of less than 500 ppm above background. After 5 calendar days, an instrument reading of 500 ppm above background or greater is a violation.

(ii) If the pressure relief device consists of or includes a rupture disk, install a replacement disk as soon as practicable after a pressure release, but no later than 5 calendar days after the pressure release. The owner or operator must also conduct instrument monitoring, as detected by Method 21 of 40 CFR part 60, appendix A, no later than 5 calendar days after the pressure relief device returns to organic HAP service following a pressure release to verify that the pressure relief device is operating with an instrument reading of less than 500 ppm above background. After 5 calendar days, an instrument reading of 500 ppm above background or greater is a violation.

(3) *Pressure release management.* Except as specified in paragraph (e)(4) of this section, the owner or operator must comply with the requirements specified in paragraphs (e)(3)(i) and (ii) of this section for all pressure relief devices in organic HAP service. Any pressure release from such a pressure relief device is a violation.

(i) The owner or operator must equip each pressure relief device in organic HAP service with a device(s) or parameter monitoring system that is capable of identifying and recording the time and duration of each pressure release and of notifying operators immediately that a pressure release is occurring. Examples of these types of devices and systems include, but are not limited to, a rupture disk indicator, magnetic sensor, motion detector on the pressure relief valve stem, flow monitor, or pressure monitor. Regardless of the methodology chosen, when the device or monitoring system indicates that a pressure release has occurred, it shall be directly enforceable as a release from the pressure relief device. If this instrument is capable of measuring the concentration of leaks through the pressure relief device, then the owner or operator may use this instrument to meet the requirements of paragraph (e)(2) of this section.

(ii) If any pressure relief device in organic HAP service releases to atmosphere as a result of a pressure release event, the owner or operator must calculate the quantity of organic HAP released during each pressure release event and report this quantity as required in paragraph (g) of this section. Calculations may be based on data from the pressure relief device monitoring alone or in combination with process parameter monitoring data and process knowledge.

(4) *Pressure relief devices routed to a control device or process.* If a pressure

relief device in organic HAP service is designed and operated to route all pressure releases through a closed vent system to a control device or process, the owner or operator is not required to comply with paragraphs (e)(1), (2), or (3) (if applicable) of this section. Both the closed vent system and control device (if applicable) must meet the requirements of § 63.1034 of this part.

(f) *Recordkeeping requirements.* For acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources, for pressure relief devices in organic HAP service, keep records of the information specified in paragraphs (f)(1) through (5) of this section, as applicable.

(1) A list of identification numbers for pressure relief devices that the owner or operator elects to equip with a closed-vent system and control device, under the provisions in paragraph (e)(4) of this section.

(2) A list of identification numbers for pressure relief devices subject to the provisions in paragraph (e)(1) of this section.

(3) A list of identification numbers for pressure relief devices equipped with rupture disks, under the provisions in paragraph (e)(2)(ii) of this section.

(4) The dates and results of the monitoring following a pressure release for each pressure relief device subject to the provisions in paragraph (e)(1) and (2) of this section. The results shall include:

(i) The background level measured during each compliance test.

(ii) The maximum instrument reading measured at each piece of equipment during each compliance test.

(5) For pressure relief devices in organic HAP service subject to paragraph (e)(3) of this section, keep records of each pressure release to the atmosphere, including the following information:

(i) The source, nature, and cause of the pressure release.

(ii) The date, time, and duration of the pressure release.

(iii) An estimate of the quantity of total HAP emitted during the pressure release and the calculations used for determining this quantity.

(iv) The actions taken to prevent this pressure release.

(v) The measures adopted to prevent future such pressure releases.

(g) *Periodic reports.* For owners or operators of an acrylic and modacrylic fiber production affected source or polycarbonate production affected source subject to paragraph (e) of this section, Periodic Reports must include the information specified in paragraphs (g)(1) through (3) of this section for pressure relief devices in organic HAP service.

(1) For pressure relief devices in organic HAP service subject to paragraph (e) of this section, report confirmation that all monitoring to show compliance was conducted within the reporting period.

(2) For pressure relief devices in organic HAP gas or vapor service subject to paragraph (e)(2) of this section, report any instrument reading of 500 ppm above background or greater, more than 5 days after the relief device returns to organic HAP gas or vapor service after a pressure release.

(3) For pressure relief devices in organic HAP service subject to paragraph (e)(3) of this section, report each pressure release to the atmosphere, including the following information:

(i) The source, nature, and cause of the pressure release.

(ii) The date, time, and duration of the pressure release.

(iii) An estimate of the quantity of total HAP emitted during the pressure release and the method used for determining this quantity.

(iv) The actions taken to prevent this pressure release.

(v) The measures adopted to prevent future such pressure releases.

■ 8. Section 63.1108 is amended by:

■ a. Adding paragraph (a) introductory text;

■ b. Adding paragraph (a)(4);

■ c. Revising the first sentence of paragraph (a)(5);

■ d. Revising the first sentence of paragraph (b)(2) introductory text; and

■ e. Revising paragraph (b)(4)(ii).

The revisions and additions read as follows:

§ 63.1108 Compliance with standards and operation and maintenance requirements.

(a) *Requirements.* The requirements of paragraphs (a)(1), (2), and (5) of this section apply to all affected sources except acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources. The requirements of paragraph (a)(4) of this section apply only to acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources. The requirements of paragraphs (a)(3), (6), and (7) of this section apply to all affected sources.

* * * * *

(4)(i) For acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources, the emission limitations and established parameter ranges of this part shall apply at all times except during periods of non-operation of the affected source (or specific portion thereof) resulting in cessation of the emissions to which this subpart applies. Equipment leak requirements shall apply at all times except during periods of non-operation of the affected source (or specific portion thereof) in which the lines are drained and depressurized resulting in cessation of the emissions to which the equipment leak requirements apply.

(ii) *General duty.* At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(5) During startups, shutdowns, and malfunctions when the emission standards of this subpart and the subparts referenced by this subpart do not apply pursuant to paragraphs (a)(1) through (3) of this section, the owner or operator shall implement, to the extent reasonably available, measures to prevent or minimize excess emissions. * * *

* * * * *

(b) * * *

(2) *Parameter monitoring: Excursions.* An excursion is not a violation in cases where continuous monitoring is required and the excursion does not count toward the number of excused excursions (as described in § 63.998(b)(6)(ii)), if the conditions of paragraph (b)(2)(i) or (ii) of this section are met, except that the conditions of paragraph (b)(2)(i) of this section do not apply for acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources. * * *

* * * * *

(4) * * *

(ii) *Performance test.* The Administrator may determine compliance with emission limitations of this subpart based on, but not limited to, the results of performance tests conducted according to the procedures

specified in § 63.997, unless otherwise specified in this subpart or a subpart referenced by this subpart. For acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources, performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown unless specified by the Administrator or an applicable subpart. The owner/operator may not conduct performance tests during periods of malfunction. The owner operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

* * * * *

■ 9. Section 63.1110 is amended by:
■ a. Adding a sentence to the end of paragraph (a) introductory text;
■ b. Revising paragraph (a)(7);
■ c. Adding paragraph (a)(9);
■ d. Adding a sentence to the end of paragraph (d)(1) introductory text; and
■ e. Adding paragraph (d)(1)(iii).

The revisions and additions read as follows:

§ 63.1110 Reporting requirements.

(a) * * * Each owner or operator of an acrylic and modacrylic fiber production affected source or polycarbonate production affected source subject to this subpart shall submit the reports listed in paragraph (a)(9) of this section, as applicable.

* * * * *

(7) Startup, Shutdown, and Malfunction Reports described in § 63.1111 (except for acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources).

* * * * *

(9) *Electronic reporting.* Within 60 days after the date of completing each performance test (as defined in § 63.2), the owner or operator must submit the results of the performance tests, including any associated fuel analyses, required by this subpart according to the methods specified in paragraph (a)(9)(i) or (ii) of this section.

(i) For data collected using test methods supported by the EPA-provided software, the owner or operator shall submit the results of the performance test to the EPA by direct computer-to-computer electronic transfer via EPA-provided software, unless otherwise approved by the Administrator. Owners or operators, who claim that some of the information being submitted for performance tests is confidential business information (CBI), must submit a complete file using EPA-provided software that includes information claimed to be CBI on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404–02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA by direct computer-to-computer electronic transfer via EPA-provided software.

(ii) For any performance test conducted using test methods that are not compatible with the EPA-provided software, the owner or operator shall submit the results of the performance test to the Administrator at the appropriate address listed in § 60.4.

* * * * *

(d) * * *

(1) * * * For pressure relief devices subject to the requirements of § 63.1107(e)(3), the owner or operator of an acrylic and modacrylic fiber production affected source or polycarbonate production affected source shall submit the information listed in paragraph (d)(1)(iii) of this section in the Notification of Compliance Status within 150 days after the first applicable compliance date for pressure relief device monitoring.

* * * * *

(iii) For pressure relief devices in organic HAP service, a description of the device or monitoring system to be implemented, including the pressure relief devices and process parameters to be monitored (if applicable), and a description of the alarms or other methods by which operators will be notified of a pressure release.

* * * * *

■ 10. Section 63.1111 is amended by:
■ a. Adding paragraph (a) introductory text;
■ b. Adding paragraph (b) introductory text;
■ c. Removing reserved paragraph (b)(3); and
■ d. Adding paragraph (c).

The revisions and additions read as follows:

§ 63.1111 Startup, shutdown, and malfunction.

(a) *Startup, shutdown, and malfunction plan.* The requirements of this paragraph (a) apply to all affected sources except for acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources.

* * * * *

(b) *Startup, shutdown, and malfunction reporting requirements.* The requirements of the paragraph (b) apply to all affected sources except for acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources.

* * * * *

(c) *Malfunction recordkeeping and reporting.* The requirements of this paragraph (c) apply only to acrylic and modacrylic fiber production affected sources and polycarbonate production affected sources.

(1) *Records of malfunctions.* The owner or operator shall keep the records specified in paragraphs (c)(1)(i) through (iii) of this section.

(i) In the event that an affected unit fails to meet an applicable standard, record the number of failures. For each failure record the date, time, and duration of each failure.

(ii) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(iii) Record actions taken to minimize emissions in accordance with § 63.1108(a)(4)(ii), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(2) *Reports of malfunctions.* If a source fails to meet an applicable standard, report such events in the Periodic Report. Report the number of failures to meet an applicable standard. For each instance, report the date, time and duration of each failure. For each failure the report must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

Subpart OOO—National Emission Standards for Hazardous Air Pollutant Emissions: Manufacture of Amino/Phenolic Resins

■ 11. Section 63.1400 is amended by:
■ a. Revising paragraph (k); and
■ b. Adding paragraph (l).

The revisions and additions read as follows:

§ 63.1400 Applicability and designation of affected sources.

* * * * *

(k) *Applicability of this subpart.* (1) The emission limitations set forth in this subpart and the emission limitations referred to in this subpart shall apply at all times except during periods of non-operation of the affected source (or specific portion thereof) resulting in cessation of the emissions to which this subpart applies.

(2) The emission limitations set forth in 40 CFR part 63, subpart UU, as referred to in § 63.1410, shall apply at all times except during periods of non-operation of the affected source (or specific portion thereof) in which the lines are drained and depressurized resulting in cessation of the emissions to which § 63.1410 applies.

(3) The owner or operator shall not shut down items of equipment that are required or utilized for compliance with this subpart during times when emissions are being routed to such items of equipment if the shutdown would contravene requirements of this subpart applicable to such items of equipment.

(4) *General duty.* At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(l) *Affirmative defense for violation of emission standards during malfunction.* In response to an action to enforce the standards set forth in this subpart, the owner or operator may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined at 40 CFR 63.2. Appropriate penalties may be assessed if the owner or operator fails to meet their burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(1) *Assertion of affirmative defense.* To establish the affirmative defense in any action to enforce such a standard, the owner or operator must timely meet the reporting requirements in paragraph (l)(2) of this section, and must prove by a preponderance of evidence that:

(i) The violation:

(A) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner; and

(B) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(C) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(D) Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(ii) Repairs were made as expeditiously as possible when a violation occurred; and

(iii) The frequency, amount, and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and

(iv) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(v) All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment, and human health; and

(vi) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

(vii) All of the actions in response to the violation were documented by properly signed, contemporaneous operating logs; and

(viii) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and

(ix) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

(2) *Report.* The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator, with all necessary supporting documentation, that explains how it has met the requirements set forth in paragraph (l)(1) of this section. This affirmative defense report shall be included in the first periodic compliance report, deviation report, or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance report, deviation report, or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance report, deviation report, or excess emission report due after the initial occurrence of the violation of the relevant standard.

■ 12. Section 63.1401 is amended by revising paragraphs (a) and (b) to read as follows:

§ 63.1401 Compliance schedule.

(a) New affected sources that commence construction or reconstruction after December 14, 1998, shall be in compliance with this subpart (except § 63.1411(c)) upon initial start-up or January 20, 2000, whichever is later. New affected sources that commenced construction or reconstruction after December 14, 1998, but on or before January 9, 2014, shall be in compliance with the pressure relief device monitoring requirements of § 63.1411(c) by 3 years after the effective date of the final amendments. New affected sources that commence construction or reconstruction after January 9, 2014, shall be in compliance with the pressure relief device monitoring requirements of § 63.1411(c) upon initial startup or by the effective date of the final amendments, whichever is later.

(b) Existing affected sources shall be in compliance with this subpart (except §§ 63.1404, 63.1405, and 63.1411(c)) no later than 3 years after January 20, 2000. Existing affected sources shall be in compliance with the storage vessel requirements of § 63.1404 by the effective date of the final amendments. Existing affected sources shall be in compliance with the continuous process vent requirements of § 63.1405 and the pressure relief device monitoring requirements of § 63.1411(c) by 3 years after the effective date of the final amendments.

* * * * *

■ 13. Section 63.1402 is amended by:

■ a. In paragraph (a), adding in alphabetical order the terms ''Pressure release (§ 63.161)'' and ''Pressure relief device or valve (§ 63.161)'' and

removing the term ''Start-up, shutdown, and malfunction plan (§ 63.101)'';
■ b. In paragraph (b), adding in alphabetical order the terms ''Affirmative defense'' and ''Seal''.

The revisions and additions read as follows:

§ 63.1402 Definitions.

* * * * *

(b) * * *

Affirmative defense means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

* * * * *

Seal means, for the purpose of complying with the requirements of § 63.1033(b), that instrument monitoring of the open-ended valve or line conducted according to the method specified in § 63.1023(b) and, as applicable, § 63.1023(c), indicates no readings of 500 parts per million or greater.

* * * * *

■ 14. Section 63.1404 is amended by revising the first sentence of paragraph (a) introductory text to read as follows:

§ 63.1404 Storage vessel provisions.

(a) *Emission standards.* For each storage vessel located at a new or existing affected source that has a capacity of greater than or equal to 20,000 gallons, but less than 40,000 gallons, and vapor pressure of 1.9 pounds per square inch absolute (psia) or greater; has a capacity of greater than or equal to 40,000 gallons, but less than 90,000 gallons, and vapor pressure of 0.75 psia or greater; or has a capacity of 90,000 gallons or greater and vapor pressure of 0.15 psia or greater, the owner or operator shall comply with either paragraph (a)(1) or (2) of this section. * * *

* * * * *

■ 15. Section 63.1405 is amended by revising the first sentence of paragraph (a) introductory text to read as follows:

§ 63.1405 Continuous process vent provisions.

(a) *Emission standards.* For each continuous process vent located at a new or existing affected source with a Total Resource Effectiveness (TRE) index value, as determined following the procedures specified in § 63.1412(j), less than or equal to 1.2, the owner or operator shall comply with either paragraph (a)(1) or (2) of this section. * * *

* * * * *

■ 16. Section 63.1410 is amended by revising the first sentence of the introductory text to read as follows:

§ 63.1410 Equipment leak provisions.

The owner or operator of each affected source shall comply with the requirements of 40 CFR part 63, subpart UU (national emission standards for equipment leaks (control level 2)) for all equipment, as defined under § 63.1402, that contains or contacts 5 weight-percent HAP or greater and operates 300 hours per year or more, except § 63.1030. * * *

■ 17. Add § 63.1411 to read as follows:

§ 63.1411 Requirements for pressure relief devices.

Except as specified in paragraph (d) of this section, the owner or operator must comply with the requirements specified in paragraphs (a) and (b) of this section for pressure relief devices in organic HAP gas or vapor service. Except as specified in paragraph (d) of this section, the owner or operator must also comply with the requirements specified in paragraph (c) of this section for all pressure relief devices in organic HAP service.

(a) *Operating requirements.* Except during a pressure release event, operate each pressure relief device in organic HAP gas or vapor service with an instrument reading of less than 500 ppm above background as detected by Method 21 of 40 CFR part 60, appendix A.

(b) *Pressure release requirements.* For pressure relief devices in organic HAP gas or vapor service, comply with paragraph (b)(1) or (2) of this section, as applicable.

(1) If the pressure relief device does not consist of or include a rupture disk, conduct instrument monitoring, as detected by Method 21 of 40 CFR part 60, appendix A, no later than 5 calendar days after the pressure relief device returns to organic HAP service following a pressure release to verify that the pressure relief device is operating with an instrument reading of less than 500 ppm above background. After 5 calendar days, an instrument reading of 500 ppm above background or greater is a violation.

(2) If the pressure relief device consists of or includes a rupture disk, install a replacement disk as soon as practicable after a pressure release, but no later than 5 calendar days after the pressure release. The owner or operator must also conduct instrument monitoring, as detected by Method 21 of 40 CFR part 60, appendix A, no later than 5 calendar days after the pressure relief device returns to organic HAP service following a pressure release to verify that the pressure relief device is operating with an instrument reading of less than 500 ppm above background. After 5 calendar days, an instrument reading of 500 ppm above background or greater is a violation.

(c) *Pressure release management.* Except as specified in paragraph (d) of this section, the owner or operator must comply with the requirements specified in paragraphs (c)(1) and (2) of this section for all pressure relief devices in organic HAP service. Any pressure release from such a pressure relief device is a violation.

(1) The owner or operator must equip each pressure relief device in organic HAP service with a device(s) or parameter monitoring system that is capable of identifying and recording the time and duration of each pressure release and of notifying operators immediately that a pressure release is occurring. The device or monitoring system may be either specific to the pressure relief device itself or on an associated process system or piping sufficient to indicate a pressure release to the atmosphere. Examples of these types of devices and systems include, but are not limited to, a rupture disk indicator, magnetic sensor, motion detector on the pressure relief valve stem, flow monitor, or pressure monitor. Regardless of the methodology chosen, when the device or monitoring system indicates that a pressure release has occurred, it shall be directly enforceable as a release from the pressure relief device. If this instrument is capable of measuring the concentration of leaks through the pressure relief device, then the owner or operator may use this instrument to meet the requirements of paragraph (b) of this section.

(2) If any pressure relief device in organic HAP service releases to atmosphere as a result of a pressure release event, the owner or operator must calculate the quantity of organic HAP released during each pressure release event and report this quantity as required in § 63.1417(f)(13)(iii). Calculations may be based on data from the pressure relief device monitoring alone or in combination with process parameter monitoring data and process knowledge.

(d) *Pressure relief devices routed to a control device or process.* If a pressure relief device in organic HAP service is designed and operated to route all pressure releases through a closed vent system to a control device or process, the owner or operator is not required to comply with paragraphs (a), (b), or (c) (if applicable) of this section. Both the closed vent system and control device

(if applicable) must meet the requirements of § 63.1034 of this part.

■ 18. Section 63.1412 is amended by revising the last sentence of paragraph (c) to read as follows:

§ 63.1412 Continuous process vent applicability assessment procedures and methods.

* * * * *

(c) *Applicability assessment requirement.* * * * Operations during periods of malfunction shall not constitute representative conditions for the purpose of an applicability test.

* * * * *

■ 19. Section 63.1413 is amended by:

■ a. Revising paragraph (a)(2) introductory text;

■ b. Revising paragraph (h)(4) introductory text; and

■ c. Revising paragraphs (h)(5) and (h)(6).

The revisions and additions read as follows:

§ 63.1413 Compliance demonstration procedures.

(a) * * *

(2) *Performance tests.* Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested and in accordance with the General Provisions at § 63.7(a)(1), (a)(3), (d), (e)(2), (e)(4), (g), and (h), with the exceptions specified in paragraph (a)(1) of this section. Representative conditions exclude periods of startup and shutdown unless specified by the Administrator or an applicable subpart. The owner/operator may not conduct performance tests during periods of malfunction. The owner operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. Data shall be reduced in accordance with the EPA approved methods specified in this subpart or, if other test methods are used, the data and methods shall be validated according to the protocol in Method 301 of appendix A of this part.

* * * * *

(h) * * *

(4) *Deviation from the emission standard.* If monitoring data are insufficient, as described in paragraphs (h)(4)(i) through (iii) of this section, there has been a deviation from the emission standard.

* * * * *

(5) *Situations that are not deviations.* If any of the situations listed in paragraphs (h)(5)(i) or (ii) of this section occur, such situations shall not be considered to be deviations.

(i) Monitoring data cannot be collected during monitoring device calibration check or monitoring device malfunction; or

(ii) Monitoring data are not collected during periods of nonoperation of the affected source or portion thereof (resulting in cessation of the emissions to which the monitoring applies).

(6) *Periods not considered to be part of the period of control or recovery device operation.* The periods listed in paragraphs (h)(6)(i) and (ii) of this section are not considered to be part of the period of control or recovery device operation for purposes of determining averages or periods of control device or control technology operation.

(i) Monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments; or

(ii) Periods of nonoperation of the affected source (or portion thereof), resulting in cessation of the emissions to which the monitoring applies.

■ 20. Section 63.1415 is amended by revising the second sentence of paragraph (b)(1)(ii)(C) to read as follows:

§ 63.1415 Monitoring requirements.

* * * * *

(b) * * *

(1) * * *

(ii) * * *

(C) * * * The plan shall require determination of gas stream flow by a method which will at least provide a value for either a representative or the highest gas stream flow anticipated in the scrubber during representative operating conditions other than malfunctions. * * *

■ 21. Section 63.1416 is amended by:

■ a. Revising paragraphs (b) and (c)(4);

■ b. Adding paragraph (g)(5);

■ c. Revising the first sentence of paragraph (h)(1)(i);

■ d. Revising paragraph (h)(1)(ii);

■ e. Revising the first sentence of paragraph (h)(1)(iii);

■ f. Revising the last sentence of paragraph (h)(2)(iii); and

■ g. Revising paragraph (h)(2)(iv).

The revisions and additions read as follows:

§ 63.1416 Recordkeeping requirements.

* * * * *

(b) *Malfunction records.* Records shall be kept as specified in paragraphs (b)(1) and (2) of this section.

(1) In the event that an affected unit fails to meet an applicable standard, record the number of failures. For each failure record the date, time, and duration of each failure.

(2) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(3) Record actions taken to minimize emissions in accordance with § 63.1420(h)(4), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(c) * * *

(4) Monitoring data recorded during periods identified in paragraphs (c)(4)(i) and (ii) of this section shall not be included in any average computed under this subpart. Records shall be kept of the times and durations of all such periods and any other periods during process or control device or recovery device or control technology operation when monitors are not operating:

(i) Monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments; and

(ii) Periods of non-operation of the affected source (or portion thereof) resulting in cessation of the emissions to which the monitoring applies.

* * * * *

(g) * * *

(5) For pressure relief devices in organic HAP service, keep records of the information specified in paragraphs (g)(5)(i) through (v) of this section, as applicable.

(i) A list of identification numbers for pressure relief devices that the owner or operator elects to equip with a closed-vent system and control device, under the provisions in § 63.1411(d).

(ii) A list of identification numbers for pressure relief devices subject to the provisions in § 63.1411(a).

(iii) A list of identification numbers for pressure relief devices equipped with rupture disks, under the provisions in § 63.1411(b)(2).

(iv) The dates and results of the monitoring following a pressure release for each pressure relief device subject to the provisions in § 63.1411(a) and (b). The results shall include:

(A) The background level measured during each compliance test.

(B) The maximum instrument reading measured at each piece of equipment during each compliance test.

(v) For pressure relief devices in organic HAP service subject to

§ 63.1411(c), keep records of each pressure release to the atmosphere, including the following information:

(A) The source, nature, and cause of the pressure release.

(B) The date, time, and duration of the pressure release.

(C) An estimate of the quantity of total HAP emitted during the pressure release and the calculations used for determining this quantity.

(D) The actions taken to prevent this pressure release.

(E) The measures adopted to prevent future such pressure releases.

(h) * * *

(1) * * *

(i) The monitoring system is capable of detecting unrealistic or impossible data during periods of operation (e.g., a temperature reading of −200 °C on a boiler) and will alert the operator by alarm or other means. * * *

(ii) The monitoring system generates, updated at least hourly throughout each operating day, a running average of the parameter values that have been obtained during that operating day or block, and the capability to observe this running average is readily available on-site to the Administrator during the operating day. The owner or operator shall record the occurrence of any period meeting the criteria in paragraphs (h)(1)(ii)(A) and (B) of this section. All instances in an operating day or block constitute a single occurrence:

(A) The running average is above the maximum or below the minimum established limits; and

(B) The running average is based on at least six 1-hour average values.

(iii) The monitoring system is capable of detecting unchanging data during periods of operation, except in circumstances where the presence of unchanging data is the expected operating condition based on past experience (e.g., pH in some scrubbers) and will alert the operator by alarm or other means. * * *

* * * * *

(2) * * *

(iii) * * * For any calendar week, if compliance with paragraphs (h)(1)(i) through (iv) of this section does not result in retention of a record of at least one occurrence or measured parameter value, the owner or operator shall record and retain at least one value during a period of operation.

(iv) For purposes of paragraph (h)(2) of this section, a deviation means that the daily average, batch cycle daily average, or block average value of monitoring data for a parameter is greater than the maximum, or less than the minimum established value.

■ 22. Section 63.1417 is amended by:

■ a. Revising the first sentence of paragraph (d);

■ b. Removing and reserving paragraph (d)(9);

■ c. Revising paragraph (d)(11)(ii);

■ d. Revising paragraph (e) introductory text;

■ e. Adding paragraph (e)(10);

■ f. Revising the first sentence of paragraph (f)(1);

■ g. Adding paragraph (f)(13);

■ h. Revising paragraph (g);

■ i. Revising paragraph (h) introductory text; and

■ j. Adding paragraph (h)(8).

The revisions and additions read as follows:

§ 63.1417 Reporting requirements.

* * * * *

(d) *Precompliance Report.* Owners or operators of affected sources requesting an extension for compliance; requesting approval to use alternative monitoring parameters, alternative continuous monitoring and recordkeeping, or alternative controls; requesting approval to use engineering assessment to estimate organic HAP emissions from a batch emissions episode as described in § 63.1414(d)(6)(i)(C); wishing to establish parameter monitoring levels according to the procedures contained in § 63.1413(a)(4)(ii); establishing parameter monitoring levels based on a design evaluation as specified in § 63.1413(a)(3); or following the procedures in § 63.1413(e)(2), shall submit a Precompliance Report according to the schedule described in paragraph (d)(1) of this section. * * *

* * * * *

(11) * * *

(ii) Supplements to the Precompliance Report may be submitted to request approval to use alternative monitoring parameters, as specified in paragraph (j) of this section; to use alternative continuous monitoring and recordkeeping, as specified in paragraph (k) of this section; to use alternative controls, as specified in paragraph (d)(5) of this section; to use engineering assessment to estimate organic HAP emissions from a batch emissions episode, as specified in paragraph (d)(6) of this section; or to establish parameter monitoring levels according to the procedures contained in § 63.1413(a)(4)(ii) or (a)(3), as specified in paragraph (d)(7) of this section.

(e) *Notification of Compliance Status.* For existing and new affected sources, a Notification of Compliance Status shall be submitted within 150 days after the compliance dates specified in § 63.1401. For equipment leaks, the Notification of Compliance Status shall contain the information specified in 40 CFR part 63, subpart UU. For storage vessels, continuous process vents, batch process vents, and aggregate batch vent streams, the Notification of Compliance Status shall contain the information listed in paragraphs (e)(1) through (9) of this section. For pressure relief devices subject to the requirements of § 63.1411(c), the owner or operator shall submit the information listed in paragraph (e)(10) of this section in the Notification of Compliance Status within 150 days after the first applicable compliance date for pressure relief device monitoring.

* * * * *

(10) For pressure relief devices in organic HAP service, a description of the device or monitoring system to be implemented, including the pressure relief devices and process parameters to be monitored (if applicable), and a description of the alarms or other methods by which operators will be notified of a pressure release.

(f) * * *

(1) Except as specified in paragraph (f)(12) of this section, a report containing the information in paragraph (f)(2) of this section or containing the information in paragraphs (f)(3) through (11) and (13) of this section, as appropriate, shall be submitted semiannually no later than 60 days after the end of each 180 day period. * * *

* * * * *

(13) For pressure relief devices, Periodic Reports must include the information specified in paragraphs (f)(13)(i) through (iii) of this section.

(i) For pressure relief devices in organic HAP service subject to § 63.1411, report confirmation that all monitoring to show compliance was conducted within the reporting period.

(ii) For pressure relief devices in organic HAP gas or vapor service subject to § 63.1411(b), report any instrument reading of 500 ppm above background or greater, more than 5 days after the relief device returns to organic HAP gas or vapor service after a pressure release.

(iii) For pressure relief devices in organic HAP service subject to § 63.1411(c), report each pressure release to the atmosphere, including the following information:

(A) The source, nature, and cause of the pressure release.

(B) The date, time, and duration of the pressure release.

(C) An estimate of the quantity of total HAP emitted during the pressure release and the method used for determining this quantity.

(D) The actions taken to prevent this pressure release.

(E) The measures adopted to prevent future such pressure releases.

(g) *Reports of malfunctions.* If a source fails to meet an applicable standard, report such events in the Periodic Report. Report the number of failures to meet an applicable standard. For each instance, report the date, time and duration of each failure. For each failure the report must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(h) *Other reports.* Other reports shall be submitted as specified in paragraphs (h)(1) through (8) of this section.

* * * * *

(8) *Electronic reporting.* Within 60 days after the date of completing each performance test (as defined in § 63.2), the owner or operator must submit the results of the performance tests, including any associated fuel analyses, required by this subpart according to the methods specified in paragraph (h)(8)(i) or (ii) of this section.

(i) For data collected using test methods supported by the EPA-provided software, the owner or operator shall submit the results of the performance test to the EPA by direct computer-to-computer electronic transfer via EPA-provided software, unless otherwise approved by the Administrator. Owners or operators, who claim that some of the information being submitted for performance tests is confidential business information (CBI), must submit a complete file using EPA-provided software that includes information claimed to be CBI on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404–02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA by direct computer-to-computer electronic transfer via EPA-provided software.

(ii) For any performance test conducted using test methods that are not compatible with the EPA-provided software, the owner or operator shall submit the results of the performance test to the Administrator at the appropriate address listed in § 60.4.

* * * * *

■ 23. Table 1 to subpart OOO is amended by:

■ a. Removing entries 63.1(a)(6)–63.1(a)(8) and 63.1(a)(9);

■ b. Adding entries 63.1(a)(6) and 63.1(a)(7)–63.1(a)(9);

■ c. Revising entries 63.1(c)(4), 63.6(e), 63.6(e)(1)(i), and 63.6(e)(1)(ii);

■ d. Adding entry 63.6(e)(3);

■ e. Removing entries 63.6(e)(3)(i), 63.6(e)(3)(i)(A), 63.6(e)(3)(i)(B), 63.6(e)(3)(i)(C), 63.6(e)(3)(ii), 63.6(e)(3)(iii), 63.6(e)(3)(iv), 63.6(e)(3)(v), 63.6(e)(3)(vi), 63.6(e)(3)(vii), 63.6(e)(3)(vii)(A), 63.6(e)(3)(vii)(B), 63.6(e)(3)(vii)(C), 63.6(e)(3)(viii), and 63.6(e)(3)(ix);

■ f. Revising entries 63.6(f)(1), 63.7(e)(1), 63.8(c)(1)(i), 63.8(c)(1)(ii), 63.8(c)(1)(iii), and 63.10(d)(5); and

■ g. Removing footnote (a).

The revisions and additions read as follows:

TABLE 1 TO SUBPART OOO OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART OOO AFFECTED SOURCES

Reference	Applies to subpart OOO	Explanation
* *	*	* * * * *
63.1(a)(6)	Yes	
63.1(a)(7)–63.1(a)(9)	No	[Reserved].
* *	*	* * * * *
63.1(c)(4)	No	[Reserved].
* *	*	* * * * *
63.6(e)	Yes	Except as otherwise specified in this table.
63.6(e)(1)(i)	No	See § 63.1400(k)(4) for general duty requirement.
63.6(e)(1)(ii)	No	
* *	*	* * * * *
63.6(e)(3)	No	
63.6(f)(1)	No	
* *	*	* * * * *
63.7(e)(1)	No	See § 63.1413(a)(2).
* *	*	* * * * *
63.8(c)(1)(i)	No	
63.8(c)(1)(ii)	No	
63.8(c)(1)(iii)	No	
* *	*	* * * * *
63.10(d)(5)	No	See § 63.1417(g) for malfunction reporting requirements.
* *	*	* * * * *

■ 24. Table 5 to subpart OOO is amended by:

■ a. Removing entry 63.1417(g); and

■ b. Adding entry 63.1417(h)(8).

The revisions and additions read as follows:

TABLE 5 TO SUBPART OOO OF PART 63—REPORTS REQUIRED BY THIS SUBPART

Reference	Description of report	Due date
* * * * * * *		
63.1417(h)(8)	Electronic reporting	Within 60 days after completing performance test.

* * * * *

[FR Doc. 2013–30132 Filed 1–8–14; 8:45 am]

BILLING CODE 6560–50–P